





From the collection of the



San Francisco, California  
2008



**THE HANDBOOK  
of  
TRAIL CAMPCRAFT**



# HANDBOOK of TRAIL CAMPCRAFT

Prepared by  
National Campcraft Commission  
Young Men's Christian Associations

Edited by  
**JOHN A. LEDLIE**

Step-by-step guide to:

- basic equipment needs
- tools and shelters
- direction finding
- canoe trips
- winter camping
- fire building, cooking
- health and safety
- leader training
- complete hiking know-how

**ASSOCIATION PRESS**  
New York

Copyright, 1954, by National Board  
of  
Young Men's Christian Associations

796.54  
Yo 88h



Printed in the United States of America



# Contents

	PAGE
FOREWORD: LEARNING BY DOING .....	7
1. STEPS IN THE DEVELOPMENT OF A CAMPCRAFT PROGRAM .....	11
Objectives 11. Organizational patterns of camps 11. Intro- ducing the progressive trail campcraft program 12. Standard practices for trail camping 13.	
2. UNITS OF CAMPING EXPERIENCE .....	16
Orientation and exploratory hikes 16. Trail campcraft activ- ities 21. Construction projects 25. Trail camping experi- ences 27. Special projects 29.	
3. THE EFFECTIVE USE OF A STAGING AREA .....	31
The layout and structures needed 32. The purpose of the staging area 33. The care of equipment 36.	
4. LEADERSHIP TRAINING FOR TRAIL CAMPING .....	37
A definition of trail camping 37. Leadership qualifications for trail camping 38. The content of the trail training pro- gram 40. Physical skills needed for trail camping 41. Lead- ership skills and general information needed 41. Methods of training trail leadership 43.	
5. HEALTH AND SAFETY ON THE TRAIL .....	47
Preparation for the trip 47. First aid on the trail 48. Dis- cipline on the trail 52. Weather precautions 52. Shelter 53. Swimming 53. Check-up on return from trip 53.	
6. SANITATION ON THE TRAIL .....	54
Selection and preparation of the site 54. The water supply 54. The latrine 55. Disposal of kitchen waste 56. The washing of dishes and mess gear 56. Personal hygiene 57.	
7. DIRECTION FINDING—THE USE OF MAP AND COMPASS .....	58
Maps 58. The compass and its use 59. Substitute com- passes 61. Other directional signs 62.	
8. THE HANDLING AND CARE OF TOOLS .....	64
Axemanship 64. Types of pole axes 64. Care of the axe 65. Aids in chopping 67. Chopping strokes 68. Felling a tree 69. Some precautions 70. The knife 71. Types of knives 71. Care of the knife 72. The saw 73. Timber carriers 74. Log peavey 75. Pulp hook 75. Peeling spud and draw shave 75. Mattock and pick 75. Shovels, posthole digger, crow- bar 75. The care of tools 76.	

9. CLOTHING, PACKS, AND TRAIL BEDS .....	77
What trail campers wear 77. All about packs 80. How to make a good trail bed 84.	
10. SHELTERS .....	92
A temporary or a permanent shelter 92. Types of canvas tents 94. Selecting the site for the shelter 95. Two "musts" for shelters 97. The care of tents 97.	
11. TYPES OF FIRES AND FIRE BUILDING .....	99
Safety precautions 99. Types of fires 99. If rain comes 102. Types of material for fire building 103.	
12. MEALS ON THE TRAIL .....	104
Preparing the menu and the food list 104. Packing the food 105. Checking the food list on the trail 107. Cooking fires 107. Meat cookery 108. Other campfire cooking methods 108. Suggested menus 109. Recipes for trail camping 111.	
13. THE USE OF CANOES IN TRAIL CAMPING .....	120
Values in canoe trail camping 121. Methods of in-camp instruction 122. Swimming 123. Self-rescue by staying with the canoe 124. Paddling 124. Embarking and landing the canoe 129. Packing and unloading the canoe at portages 130. Portaging the canoe 131. Additional help for the use of canoes in trail camping 137.	
14. CONSERVATION ON THE TRAIL .....	140
The importance of conservation 140. Projects in conservation by age groups (6, 7, 8) 141. (9, 10, 11) 142. (12, 13, 14) 143. (15, 16, 17) 144.	
15. TRAIL CAMPING IN WINTER .....	146
The rigors of winter camping 146. In case of frostbite 174. Clothing for winter camping 147. Fire building in winter 149. What to eat on the winter trail 149. Shelter in winter 150. General equipment 151. Preparation for the novice 152. Winter pastimes on the trail 152.	
16. WOODLORE .....	154
Poisonous weeds to be identified 154. How to distinguish poisonous snakes 155. Weather signs 157. Lashing and knot tying 160.	
APPENDIX .....	167
Planning chart for progressive trail campcraft program 167. Equipment and food record blanks 168. Trail camping equipment check list 170. Food request for trail camping 171. Staging area practice 172. Bibliography 175. Dealers in equipment for trail camping 177. Index 179.	

## FOREWORD: LEARNING BY DOING

Campcraft skills make it possible for a camper to utilize the resources of the natural surroundings for his own welfare and comfort. When these skills are related to real living situations in the out-of-doors, they add sparkle and meaning to the activity. A series of such living situations has been outlined in this book and called "unit-experiences." These provide the means by which a camper may learn trail campcraft skills most readily.

William H. Kilpatrick, an outstanding educator, in an article appearing in *Camping Magazine*, February, 1942, stated:

We learn what we live, only what we live, and everything we live. We learn each thing we live as we accept it, and we learn it to the degree we count it important, and also to the degree that it fits in with what we know.

If this makes sense, then all camp programs, including the teaching of trail campcraft skills, should be based upon experiences that are important and interesting to a camper. These skills should help him to have a happier and more satisfying experience in the out-of-doors, and particularly on trail-camping experiences. The material that follows gives a camp counselor some ideas on how to help the camper find such satisfaction. For example, a tent or cabin group may decide that it wants to take a hike into the woods to cook supper. This is a "unit-experience." The counselor uses this experience to provide the members of his group with practice in using a knife and axe correctly, building a fire, and cooking a meal, all of which are skills that are related to the success of the experience and to the satisfaction that his group will get from it. This will be recognized as a beginning experience for trail camping.

Compare this procedure with a scheduled daily instruction period in the use of an axe or a knife, in fire building, and other campcraft skills that have no other purpose than the teaching of a skill. Although a skill may be learned through this latter procedure, it has little meaning until it is applied in a hiking or cook-out experience.

Use of unit-experiences for teaching trail campcraft skills, however, should not lessen the emphasis upon a high standard of performance. This approach to teaching is suggested because it seems to hold the most promise for retention of the skill once learned.

In addition to skill-instruction, the unit-experiences provide other types of learning opportunities. Educators point out that important concomitant values are learned in the process of group experience. Group experience involves planning, decision making, sharing of ideas, interplay of attitudes, co-operation, carrying out of plans, evaluation. These values contribute to the development of responsible citizens. The camp situation provides an unusual opportunity to realize this purpose.

Camping is a creative, educational experience in co-operative group living in the out-of-doors. Campcraft skills make it possible for a group to have a more satisfying experience and are more likely to become a part of the permanent resources of a camper when they are related to real life situations. For these reasons, the unit-experiences have been developed for use in resident camps.

The National Campcraft Commission, which was responsible for the development of this handbook was composed of the following members: John MacBean, Chicago, Ill., Chairman; William Douglass, Medford, N. J.; Merrill J. Durdan, Reading, Pa.; Weldon Hester, Rochester, N. Y.; John A. Ledlie, New York, N. Y.; Walter Malins, Hartford, Conn.; Willis Miller, Wilmington, Del.; Harold Moore, Harrisburg, Pa.; Nicholas Patinos, Lancaster, Pa.; Donald Perry, Worcester, Mass.; Ralph Roehm, New York, N. Y.; John H. Rowe, Jr., Minneapolis, Minn.; Walter Van Hine, Detroit, Mich.; Walter Vanderbush, Orange, N. J.; Ralph H. Wagner, Orono, Maine; W. Norris Weis, Baltimore, Md.

This commission is particularly indebted to Armin Luehrs, director of Camp Widjiwagan, St. Paul, Minn., and to Merrill J. Durdan, director of Camp Conrad Weiser, Reading, Pa., not only for writing substantial sections of the handbook, but for the exceptional photographs that were taken in their camps to illustrate specific aspects of trail camping. Acknowledgment and appreciation are also expressed to the following persons

who were responsible for additional sections: J. Edward Dodds, Summit, N. J.; William Douglass, Medford, N. J.; Weldon Hester, Rochester, N. Y.; John A. Ledlie, New York, N. Y.; Walter Malins, Hartford, Conn.; Willis Miller, Wilmington, Del.; Michael Reitzman, Yonkers, N. Y.; Ralph Roehm, New York, N. Y.; Gunnar Peterson, Chicago, Ill.; Ralph Wagner, Orono, Maine; W. Norris Weis, Baltimore, Md.; and to Helen Edwards, Harold Helgisen, Roger Nelson, and Lloyd Venables of the Camp Widjiwagan staff.

The material on lashing was prepared by Catherine T. Hammett for the publication *A.B.C.'s of Campcraft*. The commission is indebted to the National Girl Scouts of America for permission to use it.

Appreciation is expressed to Richard Lau, Norwalk, Conn., for the many sketches that were used throughout the book.

JOHN MACBEAN  
Chairman, National Campcraft Commission



# 1

## STEPS IN THE DEVELOPMENT OF A CAMPCRAFT PROGRAM

### Objectives

Three objectives guided the Commission that was responsible for the development of this trail campcraft handbook:

1. To stimulate directors to place greater emphasis upon real camping experiences in the total program.
2. To develop in campers an appreciation and love of the out-of-doors.
3. To help campers gain a better understanding of how to use the natural environment for their own welfare and comfort while living in the out-of-doors.

In presenting this material, there is no thought that the campcraft or trail camping program in any camp should be frozen into a standard pattern. Each local situation is different, and these differences need to be dealt with in adapting the material.

It is recognized that camps generally fall into four organizational patterns, and that each of the four patterns lends itself to a somewhat different basis of organization for the administration of program. Briefly, the four types of layouts are these:

### Organizational Patterns of Camps

1. The centralized camp in which no provision is made for age groupings. Each tent or cabin is composed of a fairly wide age range of campers, and the program is developed and administered with little thought to age differences.
2. The centralized layout in which campers are assigned to tents or cabins according to age. For example: cabins 1 to 4 will be reserved for campers from 9 through 11 years of age; cabins 5 to 8, for campers from 12 through 14 years of age; cabins 9 to 10, for campers 15 and 16 years of age.
3. The camp with a centralized layout that operates part of

the season for younger campers 9 through 11 years of age, and part of the season for teen-age campers 12 through 15 years of age.

4. The decentralized layout with from three to six widely separated tent or cabin units. Each unit is reserved for a particular age grouping, with the program in each unit graded to the interests and needs of the campers.

Regardless of the type of layout, the tent or cabin groups should be looked upon as the primary focus for program development, making use of trail campcraft experiences and projects graded to the particular abilities of the campers. The decentralized layout has many advantages in this connection. However, many of the centralized camps have used ingenuity in the organization of program that has, to some degree, overcome their handicap of centralization.

### **Introducing the Progressive Trail Campcraft Program**

In introducing the progressive campcraft program in a camp these steps are suggested:

1. The camp director and staff should read carefully and discuss the Foreword, "Learning by Doing." This statement gives the objectives of the progressive trail campcraft program, outlining the basic philosophy of education that prompted the development of the "units of experience."

2. A member of the camp staff who is well-grounded in campcraft skills should be assigned responsibility for the administration of the program.

3. Provision should be made in the staff training for the teaching of campcraft skills so that every counselor has knowledge in and ability to use a minimum of outdoor-living skills.

4. The "units of experience" should be used as the basis of this training in order that each counselor may be familiar with the material and may understand the steps in planning and how to involve campers in planning and preparation for trail camping and other types of outdoor experiences. A sample planning sheet for this purpose is found in the Appendix, page 167.

An example of how the material is used in a counselor training session follows: The "unit of experience" No. 4.



under B (see page 24) is selected. Counselors are then divided into cabin groups with one in each group designated as the leader. Using the planning chart (Appendix) as a guide, each group leader will take his "cabin group" through all steps of planning and preparation for the experience. Skill instruction in the use of an axe, building a fire, cooking a meal is part of the preparation. Following this instruction in the staging area, each group will then carry through with an overnight camp-out experience, returning the next day to the staging area to evaluate it. In a similar way, other units of experience can serve as a basis of training counselors. Through such a process a counselor receives specific practice in the skills essential to a successful tent or cabin experience in outdoor living. He learns by doing.

5. The daily schedule of the camp should provide sufficient time for tent or cabin campcraft projects, and unit, section, or village projects.

6. A staging area for the preparation of groups for trail camping and other campcraft practices should be developed.

### **Standard Practices for Trail Camping**

In order to operate a trail campcraft program effectively, certain standard practices need to be established:

1. A first requisite is that a camp shall have sufficient basic equipment for trail camping and campcraft projects. For a camp of 100 capacity this equipment should consist of at least the following:

- == 18 packs (baskets, boards, knapsacks, based on a maximum of 28 on trail per night)
- == Tents or jungle hammocks to accommodate 28
- == 6 nesting cooking kits, or equivalent
- == 28 sets of plates, cups, silverware, or individual cooking kits
- == 4 reflector ovens
- == 4 collapsible shovels
- == 4 buckets
- == 4 compasses
- == 6 axes (3¾ lb. head; full-size handle recommended).

- = 3 saws (tree saw; pruning saw; 10-inch saw)
- = Wedges; 6-lb. sledges; pair of log carriers; rope; draw shave or draw knife; 1½" auger; 2 cant hooks
- = Repair kit for equipment; wire (stove pipe); string; needle and heavy thread; nails (assorted); candle; matches; adhesive tape (1" roll); canoe "tarp" (piece of patching canvas); pliers and wire cutters; special equipment for repair on horse pack trips
- = 4 first aid kits

2. A special building or section of building for the storage of and distribution of equipment becomes almost mandatory for the successful administration of trail camping and program of campcraft. When located near the staging area it becomes the focal point of the program. Equipment can be checked out and in, and stored from year to year under conditions that make for minimum replacements. It is good economy to provide such a building.

3. One person on the camp staff should be responsible for helping hike groups to develop their menus and for the clearance with the steward or chef for the distribution of food. In this connection, one of the major points of friction in many camps has been with the kitchen staff. Under these circumstances, a careful briefing of the chef and his staff about the place of trail camping in the total program of the camp, and their relationship to it, should take place when these persons are employed.

Some imagination needs to be used in the planning of meals for hike groups. "Hot dogs" and beans which require very little "know-how" for preparation, are still too common on hike menus.

4. In the early stages of the development of a trail campcraft program, each camp should develop a set of standards to govern the operation of out-of-camp trips. The following standards should be included among others:

#### a. *Leadership*

One adult leader trained in trail camping and first aid for each group of from 7 to 10 boys, with an older camper serving as an aide to the leader.

b. *Health and Safety*

(1) Campers are checked by camp nurse for health and physical condition before leaving on trip.

(2) Out-of-camp swimming areas are approved by camp management, and the same standard of supervision required as for that of in-camp swimming.

(3) Group is given necessary pre-camp training in staging area.

(4) Clothing and gear or equipment are checked carefully before group leaves base camp.

(5) Standards of sanitation and conservation are observed during the entire trip.

(6) Campers in groups using either canoes or horses for transportation have met the requirements established by the camp for participation in these activities.

(7) Groups are thoroughly briefed about safety factors and individual responsibilities before leaving camp.

(8) Campers are checked by nurse for health and physical condition upon return to base camp.

c. *General*

(1) Temporary camp sites are checked and left in sanitary condition, and fires extinguished upon breaking camp.

(2) All equipment is checked and reconditioned upon return to camp.

(3) Experience is evaluated by group and notes are made on how to improve the experience.

# 2

## UNITS OF CAMPING EXPERIENCE

### A. Orientation and Exploratory Hikes

Unit of Experience	Objectives of the Experience	Description of Preparation and Planning	Skills That Are Needed for a Successful Experience	Leaders & Equipment Needed; Sources of Information
1. Orientation to the campsite and neighboring locality.	<p>To help new campers become acquainted with the terrain, beauty, and location of resources of the camp community.</p> <p>To provide a means by which tent or cabin groups begin simple, basic planning for camp experiences.</p> <p>To help new campers develop self-confidence and sense of security by familiarizing themselves with the environment in which they will live for a period of days.</p> <p>To learn the boundary lines of the camp property, private property, and local restrictions.</p> <p>To teach safety measures.</p>	<p>Group study of map of camp property. Determination of route of hike.</p> <p>Estimate of time involved in covering all points of interest. Time schedule agreed upon.</p> <p>Determination of need for and clearance with special staff persons to help in understanding importance and purpose of buildings and program equipment.</p> <p>Decisions on shoes and clothing in light of weather conditions.</p> <p>Instructions on what to do in case of an accident.</p>	<p>Ability to understand and follow simple map directions.</p> <p>Understanding of first requisites of walking on a hike.</p> <p>Knowledge of proper shoes and clothing for all types of weather conditions.</p> <p>Knowledge of safety rules and regulations.</p>	<p>Identification and enlistment of old campers.</p> <p>Camp maps.</p> <p>Enlistment of staff members to describe particular areas and functions of camp buildings, equipment, and program areas.</p> <p>First aid equipment.</p>

2. Historical points of interest, natural wonders, or conservation projects.	<p>To make campers familiar with, and to give them some knowledge about, the historical points of interest, natural wonders or conservation projects that are on or near the camp property, such as Indian shelters, or mounds, caves, beaver dams, fossil deposits, ant hills, fish hatchery, reforestation project.</p> <p>To stimulate an interest in the natural resources of the camp property and environs that can be used for other types of camping experience.</p> <p>To develop an interest in and foundation for nature lore and conservation.</p> <p>To lay the foundation for the development of a love for the outdoors.</p> <p>To help campers plan and carry out a specific project related to their camp environment.</p> <p>To alert campers to the need and methods of controlling erosion.</p>	<p>Same skills as under No. 1. Knowledge of how to use telescope and magnifying glass.</p> <p>Planning of route, length of stay, activities on arrival at point of interest.</p> <p>Determination of the leader or leaders best qualified to make the selected hike experience interesting and profitable. Assignment of responsibility for securing leadership.</p> <p>Follow-up of interests stimulated by the hike.</p> <p>Instruction on what to do in case of accident.</p>	<p>Leader qualified for specific hike purposes.</p> <p>Telescope, magnifying glass, first aid equipment.</p>
--	---	--	--

Unit of Experience	Objectives of the Experience	Description of Preparation and Planning	Skills That Are Needed for a Successful Experience	Leaders & Equipment Needed; Sources of Information
3. Direction hike.	To stimulate interest in a camp reforestation project.			
	To stimulate wider community interests.			
	<p>To experiment with use of a compass.</p> <p>To experiment with use of nature's compasses, such as stars, moss on trees.</p> <p>To learn how to reach a destination by means of a compass.</p> <p>To make a map of a trail.</p> <p>To prevent getting lost or to find one's way to safety after getting lost.</p>	<p>By use of map, determination of destination of hike.</p> <p>Study of the character of the country through which hike is to be taken and decision about footwear and clothing.</p> <p>Plans for experiments and practice in use of compass.</p> <p>Discussion of natural factors that aid in direction finding.</p> <p>Plans for experiments and practice in use of nature's compasses.</p>	<p>Use of compass; ability to read maps.</p> <p>Ability to read nature's signs for direction finding.</p> <p>First aid.</p>	<p>Leader with basic knowledge of use of compass.</p> <p>Compass for each hiker.</p> <p>Paper, map, books.</p> <p>First aid equipment.</p> <p>Field glasses, pencils, first aid equipment.</p>
4. Observation and study of plant, tree, flower, insect, bird, reptile, or small animal life.	<p>To learn about specific aspects of the natural wonders that are native to the camp locale.</p> <p>To develop an appreciation of how natural laws operate in the world of nature.</p>	<p>Selection of purpose of hike. Determination of place where purpose may be carried out best.</p> <p>Enlistment of leaders and campers qualified in the area to be studied.</p>	<p>Beginning knowledge about and identification of the more common trees, flowers, plants, minerals, small animals, insects, and reptiles that are native to the camp locale.</p>	<p>Qualified leaders, campers with specific nature interests and skills.</p> <p>Binoculars, magnifying glass; manuals and books on nature lore, conservation, and game and bird sanctuary; seed-</p>

<p>To help campers recognize the interrelatedness of plant, animal, insect, and mineral life to conservation.</p> <p>To teach campers how to recognize poisonous plants and methods of protection and eradication.</p> <p>To stimulate camp reforestation, improvement project, or bird or game sanctuary.</p> <p>To develop a recognition of the value of group service.</p> <p>To teach campers to protect plants, trees, and animal life.</p> <p>To encourage alertness to all that can be seen about one in the out-of-doors.</p>	<p>Determination of length of hike.</p> <p>Division of follow-up steps to capitalize on interests of campers, including demonstration of planting seedlings and use of Atlacide, Ammate, or similar chemical on poison ivy.</p> <p>Discussion about the needs of plants, flowers, trees, animal life in order to survive.</p>	<p>Ability to use binoculars and magnifying glass.</p> <p>Construction skills in building bird-feeding stations and brush animal shelters, and in planting game cover.</p> <p>Ability to photograph natural wonders.</p> <p>First aid.</p>	<p>lings; Atlacide, or Ammate, and sprayer; spades.</p> <p>Tools needed for small construction projects.</p> <p>Photographic equipment and manual.</p> <p>First aid equipment.</p>
<p>To stimulate interest in nature collections as a means of developing appreciation of and love for life in the open.</p> <p>To teach methods of identifying and mounting nature objectives.</p> <p>To develop the skills of direct observation.</p>	<p>Selection of the type of collections for which the hike is to be held.</p> <p>Enlistment of leaders, both counselors and old campers, whose knowledge will be a resource to the group.</p> <p>Determination of the equipment needed for</p>	<p>Knowledge of where and what to look for, and how to secure the objects which the group desires to collect.</p> <p>Use of jackknife.</p> <p>Proper handling of specimens for best preservation.</p>	<p>Leaders with knowledge about the locale, and methods of securing the objects to be collected.</p> <p>Hand axe.</p> <p>Note books, boxes, sacks, envelopes.</p> <p>Butterfly net, potassium cyanide jar.</p>

## 5. Collection of specimens of minerals, flowers, fossils, insects, leaves, plant life, relics.

Unit of Experience	Objectives of the Experience	Description of Preparation and Planning	Skills That Are Needed for a Successful Experience	Leaders & Equipment Needed; Sources of Information
		<p>the experience, and assignment of responsibilities for constructing or getting this equipment.</p> <p>Selection of route of hike through camp property in terms of its possibilities for collecting the nature objects decided upon.</p> <p>Demonstration of how to preserve the objects collected.</p> <p>Decision about plans for work of mounting collection on return to camp.</p>	<p>Correct mounting procedures.</p> <p>First aid.</p>	<p>Mounting equipment for insects and butterflies.</p> <p>Manuals and books for identification purposes. Jackknives, chipping hammer, first aid equipment.</p>
6. Site or sites for outpost or overnight camping experience.	<p>To locate a suitable campsite for overnight campers' experience.</p> <p>To help campers recognize the essentials of a good campsite.</p> <p>To learn "what and how" to clear a campsite.</p> <p>To learn how to leave a campsite in sanitary condition.</p>	<p>Group study of topographical maps of areas within reasonable travel distance of camp suitable for outpost campsites.</p> <p>Selection of areas to be explored.</p> <p>Development of set standards for judging a campsite.</p>	<p>Ability to read a topographical map.</p> <p>Ability to blaze and follow a trail through primitive forest areas to predetermined destination.</p> <p>Ability to use compass.</p> <p>First aid.</p>	<p>Trail, trip, or campcraft leadership.</p> <p>Map; compass for each camper.</p> <p>First aid equipment.</p>



## B. Campcraft Activities

1. Tent or cabin camp-fire experience.	To provide an opportunity for a tent or cabin group to plan and carry out a campfire program.	Selection of location for campfire.	Ability to handle properly both jackknife and hand axe.	Tent or cabin counselors.
	To teach the fundamentals in use of hand axe and jackknife.	Provision for training and practice in use of hand axe and jackknife.	Knowledge of what wood to select for campfire.	Jackknives, hand axes. Source book on games, stunts, and songs.
	To teach campers the kinds of wood that are suitable for a campfire, for entertainment purposes.	Provisions for demonstration in how a campfire for entertainment purposes should be built.		Pails with sand or water.
	To provide practice in group program planning.	Outline of program of songs, stunts, and games.		First aid equipment.
	To provide practice in principles of conservation.	Assignment of responsibilities for getting wood for fire, cutting wood, building fire, campfire songs, stunts, leading of games, closing worship.		
	To learn the first principles of forest fire prevention and control.			
	To develop <i>esprit de corps</i> in cabin group.			
	To provide means by which counselor gets to know each camper better.			

Unit of Experience	Objectives of the Experience	Description of Preparation and Planning	Skills That Are Needed for a Successful Experience	Leaders & Equipment Needed; Sources of Information
2. Tent or cabin break-fast cook-out.	<p>To provide an experience through which a group learns how to cook a simple meal.</p> <p>To learn how to build a fire best suited to cooking purposes.</p> <p>To develop added skill in the use of the hand axe.</p> <p>To get elementary training in the selection of food stuffs and the make-up of menus.</p> <p>To provide ways in which campers may achieve group recognition and approval.</p> <p>To develop a sense of personal responsibility.</p> <p>To develop a sense of food values in terms of dollars and cents.</p>	<p>Decision on location of cook-out site.</p> <p>Determination of menu types, quantity of food, and working utensils.</p> <p>Plans for demonstrating and practice in handling a hand axe, building a cooking fire, and methods of cooking food.</p> <p>Plan for demonstration of making simple equipment for cooking purposes, such as pot for boiling water, crane for hanging pot.</p> <p>Assignment of responsibilities for transporting food, collecting and cutting wood, building fire, cooking meals, washing dishes, and cleaning up campsite.</p> <p>Use of safety practice in extinguishing fire.</p>	<p>Use of jackknife in making cooking equipment.</p> <p>Knowledge of how to make simple working utensils.</p> <p>Use of hand axe.</p> <p>Building a fire for cooking purposes.</p> <p>Selection of suitable food for breakfast menu.</p> <p>Ability to cook food over an outdoor fire.</p> <p>Knowledge of sanitary practices.</p> <p>Ability to determine proper amounts of food for a specific-size group.</p> <p>Knowledge of shrinkage of foods in cooking.</p> <p>First aid.</p>	<p>Tent or cabin counselor for each seven to ten campers.</p> <p>Jackknives, hand axes, canteens, knapsacks or tote baskets, plates, knives, forks, pots, frying pans, utensils necessary for the preparation of the selected menu.</p> <p>Manual or books on development of camp menus and outdoor cooking.</p> <p>First aid equipment.</p>
3. Selection and conditioning of overnight camp-out site.	<p>To give campers practice in selecting suitable campsite.</p> <p>To provide experience in constructing the min-</p>	<p>Determination of location of campsite before arrival at site.</p> <p>Plans for demonstration in use of hand axe,</p>	<p>Use of hand axe, large axe, and other tools.</p> <p>Knowledge of wood suitable for construction of simple shelters.</p>	<p>Tent or cabin counselor for 7 to 10 campers.</p> <p>Hand axes, large axes.</p> <p>Other essential tools.</p>

imum types of shelters, kitchens, and sanitary provisions.	large axe, knife, and saw.	Sense of good conservation practice.	Rope. First aid equipment.
To give more advanced training in the use of hand axe.	Determination of the kind and amount of construction that will be attempted.	Ability to design and construct an Adirondack lean-to from wilderness materials.	
To start training in the use and care of large axe.	Determination of the needs in terms of tools for the development of the campsite.	Knowledge of where and how to dig a sanitary privy.	
To use knowledge of principles of conservation in the selection of trees for primitive construction purposes.	Assignment of responsibilities for transportation of equipment.	Knowledge of how to set up kitchen and fireplace for efficient and best results.	
To use and care for other essential tools in construction of shelters.	<i>On arrival at campsite:</i> Decision on the clearing of brush that is necessary.	Knowledge of how to store food safely and properly.	
To develop individual and group responsibility.	Determination of the location of "privy," the lean-to shelter that is to be constructed, beds, the location of fireplace for cooking purpose and other equipment, such as table, food storage, and other essentials for the comfort of the group.	Knowledge of how to make bed out of available material.	First aid.
To develop techniques for comfortable living in the out-of-doors.	Study of type of construction suitable to surroundings.		

Unit of Experience	Objectives of the Experience	Description of Preparation and Planning	Skills That Are Needed for a Successful Experience	Leaders & Equipment Needed; Sources of Information
4. Tent or cabin hike to outpost campsite, overnight sleep-out, cooking evening meal and breakfast.	To increase real camper skills through providing longer-term experience in establishing temporary campsite, sleeping out, cooking meals, and caring for one's self under primitive outdoor conditions.	Selection of campsite and determination of mode of travel.  Demonstration in preparation of different types of food for breakfast, dinner, and supper menus.	Use of jackknife, use of hand axe.  Selection of wood and knowledge of building cooking fires.  Selection, preservation, and care of food.	Jackknives, hand axes. Cooking utensils.  Mobile shelters.  Tents, hammocks, bedding.  Pocket gear.
a. Similar experience: using boats, canoes, or horses to reach campsite.				Shovels.
b. Similar experience: hiking as mode of travel, cooking at least three meals.	To get campers to accept responsibility for personal and group welfare.  To widen social experience of campers.  To teach safety measures and to develop consciousness for need of safety.	Continued practice in use of hand axe, practice in fire building.  Development of menus.  Selection of kind and quantity of food. Determination of shelters, pack equipment, cooking utensils, bedding, clothing, and footwear.  Assignment of responsibilities for carting food and equipment.  Assignment of responsibility for work at campsite and care of equipment.	Development of menus and preparation of food.  Cooking over outdoor fire.  Erection of temporary shelters.  Packing of food and equipment.  Making of beds from wilderness materials.  Conservation "know-how."  Skill in handling mode of travel, such as canoe, horse.	Plates, forks, knives, spoons, canteens, cups.  Manual on food preparation and outdoor cooking.  Rope.  First aid equipment.
		Assignment of sanitary practices.  Clean-up of campsite.  Safety instruction.	First aid.	

## C. Construction Projects

### 1. Staging area.

- To develop and equip an area for the demonstration and teaching of campcraft skills.
- To stimulate interest in trip and trail camping.
- To help campers achieve the skills necessary for self-reliance in the out-of-doors.
- To demonstrate good techniques in campcraft.

### 2. Nature trail.

- To develop projects that will contribute an understanding and appreciation of the out-of-doors.
- To expand the interests of campers.
- To have campers create projects that can be shared with others.
- To stimulate interest in nature lore.

Demonstration of proper method of packing equipment and supplies for hiking, canoe, horse.			
Selection of suitable location for demonstration area.	Selection of trees, observing conservation "know-how," felling of trees, use of hand axe and large axe, knowledge of types of fires, how to construct lean-tos, tables, cooking utensils, hiking gear.	Qualified counselors. Hand axes, large axes, jackknives. Manuals and books in campcraft. First aid equipment.	
Development of plan, with appropriate sketches, the layout of the area.			
Determination of the tools needed for work on the project.	First aid.		
Assignment of responsibilities.			
Decision on hours each day to be given to work on project.			
Explore territory through which trail will be laid.	Elementary knowledge of biology, and ability to identify natural objects along trail.	Qualified counselor. Hand axes.	
Study booklet on <i>Nature Trails</i> issued by American Museum of Natural History, New York City.	Ingenuity in marking natural objects.	Guides on trees, flowers, plants, insects, birds and so forth.	
Make sketch of trail and locate museum on it.	Use of hand axe and jackknife.	The booklet on <i>Nature Trails</i> by American Museum of Natural History.	
Plan for clearing trail and identification of trees, plants, flowers, ant hills, etc.	Skill in preparation of signs.	Sign material for marking trail.	
	Basic knowledge in conservation.	Essential tools.	
	First aid.		

Unit of Experience	Objectives of the Experience	Description of Preparation and Planning	Skills That Are Needed for a Successful Experience	Leaders & Equipment Needed; Sources of Information
		Decide upon daily schedule, and tools and materials needed. Assign responsibilities.		Paint and paint brushes. First aid equipment.
3. Camp improvements.	To add some improvement to camp that will benefit all campers.	Survey of the needs of the camp.	Skill in development of sketch of project.	Tent or cabin counselor. Materials for sketching project.
a. Construction and erection of guards, signs, bridges, trails, picnic areas, council rings.	To provide ways in which campers may achieve recognition and approval. To encourage acceptance of responsibility for the functioning of the camp. To stimulate a sense of social responsibility. To develop feelings of ownership.	Acceptance of responsibility for a specific project. Development of sketches. Determination of tools and materials needed. Assignment of responsibility. Schedule of daily working hours.	Selection of suitable trees and other wilderness material. Some knowledge of forest conservation. Use of hand axe and large axe. Skill in lettering signs. Knowledge of rustic construction. Knot tying and lashing. First aid.	Manual on <i>A B C's of Campcraft</i> . Hand axes. Large axes. Jackknives. Paint and brushes. First aid equipment.
4. Large construction projects.	To provide experience in constructing a major project that will involve more advanced "know-how" in campcraft skills.	Survey of construction needs and determination of project that will serve the program best. Development of sketches.	Selection of trees, felling of trees, sketching ability, use of hand axe, use of large axe, use of other tools. Understanding of conservation principles.	Hand axes, large axes, other essential tools for a specific project. Manual or book of sketches of camp construction projects. First aid equipment.
a. Building a cabin.	To provide experience in planning and carrying out a project that becomes a program resource for all campers.	Decision about tools and materials needed. Schedule of daily working hours.	Knot tying and lashing.	
b. Constructing an older boys' unit.	To stimulate concern for welfare of others.	Assignment of responsibility.	Knowledge of rustic construction. First aid.	
c. Making a council ring.				
d. Constructing a tepee.				
e. Constructing look-out towers.				

To develop resourcefulness and co-operation.  
To develop pride in and loyalty to camp. To teach safety.

### D. Trail Camping Experiences

- a. Three-day hiking, horseback, or canoe trip.
- b. Fourteen-day hiking, horseback, or canoe trip.

Determination of trip objectives, means of transportation, and plans for water on way.

Mastery of map reading and development of simple code to govern living of group while on trip.

Development of tentative menus with due care to sufficient nutritive values.

Working out a budget so that each camper shares equally in cost of trip.

Purchase of minimum food supplies, and plan for additional purchases.

Decision about cooking equipment, hiking or trip gear, bedding.

Knowledge, use, and care of hiking gear.

How to select a campsite, pitch a tent, make a bed, dig a "pit" privy.

Care for food.

Selection of tinder, kindling, and wood for building cooking fire.

Cooking meals.

Use of hand axe.

Use of large axe.

Use of canoe.

How to portage, repair, and care for canoe on trip.

Ability to swim at least a half mile and to keep afloat in the water with clothes on.

Proper dress and care of footwear and clothing.

Personal hiking and trip equipment, including bedding "tarps," toilet articles, eating utensils, hand axe, jack-knife, fishing tackle, flashlight.

General equipment, including cooking utensils, food tents, matches.

Maps of area through which trip will be made.

First aid supplies.

Canoes, paddles.

Horses.

Unit of Experience	Objectives of the Experience	Description of Preparation and Planning	Skills That Are Needed for a Successful Experience	Leaders & Equipment Needed; Sources of Information
	and love of the out-of-doors.	Health examination of all campers.	ing during all kinds of weather, washing and keeping clothing clean.	
	To learn self-discipline under all kinds of weather conditions.	Depending upon mode of travel, check on horseback riding skill, ability to pass canoe test, understanding of first aid.	Use of appropriate tackle for fishing.	
	To deal effectively with emergencies as they arise.	Conduct "buzz sessions" around emergency situations arising on a trip.	Cleaning, preparing, and cooking a fish.	
	To learn how to plan and carry out a real camping experience involving menu planning and development of sufficiently nutritive meals, finances, respect for and care of equipment.	Review history of country through which trip will be taken.	Horseback riding skill, feeding and care of horse on trip.	
		Final meeting of group to check personal equipment of each camper and assign share of general equipment.	First aid.	
		Assign rotating responsibilities for every detail while on trail and in camp.		
		Arrangements for leaving each camp in sanitary condition.		
		Predetermined method of keeping in touch with home base.		



## E. Special Projects

1. Development and operation of a weather station.	To encourage campers to make observations and keep daily records of weather conditions.	Study available literature on amateur weather bureaus.	Ability to follow directions carefully.	Counselor with some knowledge of weather forecasting.
	To familiarize campers with some of the signs that make it possible to forecast weather.	Determine the extensiveness of the service to be provided for the camp.	Ability to read a barometer.	Material and tools for constructing the necessary equipment connected with a weather bureau operation.
	To help campers make judgments based on scientific data.	Plan on constructing or securing of necessary equipment.	Skill in recognizing types of clouds.	Book on cloud formation and how to detect weather signs.
	To provide "problem solving" experience for groups of campers.	Assign responsibilities to members of group.	Ability to read wind directions and speed gauge. Accuracy in compiling data.	
2. Barbecue for village or age-range unit.	To provide age-range unit with the experience of planning and preparing food for a group of from 20 to 40 campers.	Clearance on camp schedule for date of barbecue.	Construction of pit and spit.	Village chief or unit director.
	To provide for a widening of social contacts.	Determination of numbers to be fed, food to be served, quantity of food where barbecue pit is to be dug, fuel needed.	Building of suitable fire in barbecue pit.	Hand axes, large axes, material for constructing spit, shovels, food service and eating utensils.
	To demonstrate teamwork in the management of large functions.	Arrangement for securing of fuels, barbecue	Preparation of meat and other food, including pre-seasoning of meat and use of sauce during cooking.	Cooking utensils.
	To encourage acceptance		Knowledge of when meat is done.	Food supplies. First aid equipment.

Unit of Experience	Objectives of the Experience	Description of Preparation and Planning	Skills That Are Needed for a Successful Experience	Leaders & Equipment Needed; Sources of Information
	of responsibility for unit or village tasks.	<p>spits, cooking utensils, methods of food service, eating utensils.</p> <p>Plans for program following barbecue.</p> <p>Plans for division of responsibility for preparing, serving, cleaning up.</p>	<p>Selection of fuel.</p> <p>Use of hand axe or large axe.</p>	

### 3

## THE EFFECTIVE USE OF A STAGING AREA

A trail camp staging area is just what the name implies—an area centrally located where the entire program of training and preparation for trail trips can be carried on. Within this area typical campsites should be developed. This area should be “alive”—a working demonstration that will attract attention. It should spell out “W-I-L-D-E-R-N-E-S-S R-O-M-A-N-C-E” and challenge the adventuresome spirit of every camper. A well-planned staging area is an essential tool for a well-administered trail camping program.





Headquarters for Trail Camping Program

### **The Layout and Structures Needed**

The staging area should include the following basic areas:

*Storage and Distribution Building.* A storehouse designed to take care of trail-camping equipment and nonperishable food supplies. This building should be a permanent structure and so designed that equipment can be properly stored and be readily accessible when trip packing is in process.

Trail Camp Truck—Custom Built for Job





Trail Camp Staging Area—Shelters

*Shelters.* In the area there should be erected a number of typical temporary and permanent shelters. These shelters should be placed in locations similar to that which would be experienced on the trail. Fireplaces of various designs should be constructed in the proper location adjacent to the shelters.

*Woodcraft Area.* This is a working area set aside for the teaching of woodcraft skills, and for familiarizing staff as well as campers with a safe and proper utilization of basic tools of the out-of-doors. Axemanship is one of the major emphases that should be taught in this area.

*Sanitation.* An outside toilet and disposal area for refuse should be located adjacent to the staging area.

### **The Purpose of the Staging Area**

The primary purpose of the staging area is the training of counselors and campers in campcraft skills. Here a group moves through an experience in such a way that at its end, the group is prepared to handle itself successfully on the trail. The person responsible for training follows the counselor and his campers through this educational process step by step. The trail camp experience is not over until he has helped the group to evaluate its experience on return to camp.

Hot  
Water  
Heating—  
Trail Camp  
Staging Area



Wood Craft  
Area—  
Further  
demonstration  
of the use  
of Basic Tools



Axemanship—  
How to use  
the Basic  
Tool of the  
Woods



Moving Heavy Timber—Use of Log Carriers

The trail camp staging area can be put to many other uses to help enrich program, in addition to serving as a center for the teaching of woodcraft and camping skills. If the area is so located that a small degree of isolation can be obtained, it provides an excellent location for younger boys to experience their first overnight camping trip. The procedure of preparation should be just as challenging and as elaborate in detail as though the group were going miles away. While this group of younger boys is using the staging area, a maximum of supervision can easily be attained. This kind of utilization of a staging area has proved valuable in several camps. After the boys have had this initial experience and have attained a certain age level, they are ready to go on the trail for more

strenuous experience. The staging area can also be used for programs of a strictly camping and outdoor flavor such as cook-outs, staff feeds, and barbecues.

### **The Care of Equipment**

The care of equipment is part of the training in the staging area. The cooking kits should be bright and clean when checked into the storehouse at the end of a trip. Packs should be washed and aired, and tents dry. All equipment should be handled carefully in order to cut down the need for annual replacements. The staging area thus becomes a great asset to any camp in assisting the entire staff with the training which is so important prior to the launching of any trips. It provides the medium through which campers and inexperienced counselors actually become involved in the learning process.



Woodcraft Area—Basic Tools and How They Are Used



## 4

### LEADERSHIP TRAINING FOR TRAIL CAMPING

In most camps the trail program is just one segment of the total camp program. Some camps have no trail activity at all; others may use the trail exclusively for their program emphasis. At any rate, the emphasis becomes a matter of degree, with the majority of camps in the middle of the scale, utilizing the trail at least for part of their total program. This factor is important in leadership training: if the trail program is a question of degree, then the time allocated and the subject matter for such training also become matters of degree.

#### A Definition of Trail Camping

In order to proceed, an attempt should be made to define the term "trail camping." Simply stated, something like this might be said: "Trail camping refers to that type of camping which is done in small groups, with at least one adult leader, away from the main campsite, where group members conduct their own activity determined upon individual need and interest, using natural resources to the fullest." As an adjunct to this definition it is recommended that the trail program should be at least an overnight experience—preferably two or three, and ideally four or more nights—away from the main camp location.

If this definition is accepted, the term "decentralized" camping becomes synonymous with "trail" camping. It is camping in its purest form; a program that tends to keep the word "camp" in camping. Such camping appeals to older-age groups since the sense of adventure becomes more real. Advanced skills are needed; more camper decisions can be made; more responsibility is given them; and intimate living provides greater insight into their own personalities as well as the personalities of fellow campers.

The method of conducting trail camping can vary depending upon the individual camp. Some camps use canoes, some use horses, some use wagons; other camps might decentralize their

program with trucks, buses, bicycles, hikes, and mountain climbs. The important thing in using these various methods is that the program be kept indigenous, and the environment be exploited in all possible ways.

### **Leadership Qualifications for Trail Camping**

The absence of a trail program in many camps is due primarily to two lacks: (1) the lack of imagination to conceive the possibilities in a given environment; and (2) the lack or failure of leadership to conduct such a program. Although this section of the handbook does not deal directly with the selection of trail leaders, some reference must be made to it, since training is based upon the past experience and present qualifications of the individual leaders who are to do the job. What kind of person should this be?

A trail counselor in a completely decentralized program needs the same qualifications as a competent cabin counselor in a centralized program. There are basic qualifications which are necessary for all camp staff people, and there is no need to enumerate them at this point since camping literature has listed them many times before. However, the trail counselor must possess more than the generally accepted qualities and skills. If camp leadership standards are to be upheld in any phase of the program whatever, they should most certainly be adhered to when selecting personnel for the trail. In essence, the definition of trail camping specifies the type of person needed. Remember, the activity takes place away from the main campsite which is also away from the constant eyes of program aides and supervisors. The group carries on its own activity that is based upon individual need and interest. The use of natural resources plays a major role in this kind of camping. The leadership must be mature enough, experienced enough, and trained well enough to meet these conditions.

It becomes quite evident then that something special is needed. The trail counselor plays a somewhat different role from that of a counselor in the centralized camp, since he carries out responsibility strictly on his own. His role is enlarged to that of a camp director making certain administrative decisions; to that of a dietician and cook giving attention to balanced meals carefully prepared; to that of safety

instructor giving guidance to safe traveling; to that of a program director planning and organizing daily activity; to that of the program "specialist" teaching the basic skills needed. The trail counselor is all that and many things more. He is definitely a type of person who is capable of performing on his own with imagination, adaptability, and self-confidence.

The organizational set-up under which the camp operates also helps to determine the qualifications needed. Undoubtedly there are many methods of organization in effect and, again, the need or circumstance of the individual camp will control the pattern. But, regardless of the variations, there is a strong case for the cabin counselor to accompany his own cabin group, rather than a "specialist" in outdoor activity accompanying the group with him or in place of him. The cabin counselor then really becomes the trail counselor as well. Experience supports this practice, and the best methods and principles of group work advocate it. The cabin counselor should be kept with his group whenever possible. If this position is embraced within the over-all philosophy of trail camping, it has important implications for selection and methods of training. In selecting a potential leader there must be some assurance that he can act on his own and be the type of person who can learn quickly on the job.

Thus far, very little has been said regarding the amount of actual experience which a leader should possess before he is employed. That again may be a matter of opinion but, strange as it may seem, possession of skill or advanced knowledge concerning the activity for which the counselor is especially engaged is not the number one question for consideration. Because of the nature of camp life itself, there are other qualities more important. Experience in group leadership and supervision far exceed experience in terms of physical skills. No attempt is being made here to minimize the importance of physical skills since such skills have a relationship to the job. If a first choice were always guaranteed, without a doubt a leader who had attributes in both areas, namely, leadership and physical skills, would be selected. But if it must be a choice of either one or the other, then by the nature of the job itself, a leader must be chosen upon the basis of his leadership ability and attitudes, assuming that he is the kind of person who can

learn the physical skills on the job. If one works with machines, manual skill will, of course, be the highest requirement; but if one works with people, personality is more important. Manual or physical skills are only tools with which one works. "Personality is the hand that holds the tool." If there is a really good relationship, campers may accept a counselor who does not have special physical skills. Without a good relationship, skill is of little use.

The importance of having a sincere love for the out-of-doors almost seems too trite to mention here, but not all people are motivated for trail camping even though their performance in a centralized camp might be superb. This type of counseling and activity demands a certain flair or a special "knack" which is not easily found in people. In most cases it must be developed, and that brings us to the real subject matter of this entire section, "What is the content of such a training program?"

### **The Content of the Trail Training Program**

It is a well-known fact that without activity no learning takes place. The slogan, "Learn by doing" has been quoted by educators for many years. Training implies learning, and learning is the result of living an experience that brings satisfaction. The common usage of the word "doing" generally refers to physical activity. But it must be remembered that learning by doing is not limited to activity of the manual type only; it applies also to such activity as perceiving, imagining, comprehending, and thinking creatively.

There are a great many forms of action skills needed in everyday camp life. They are an asset because they mean greater efficiency in one's work; they enhance self-esteem; they bring social recognition; and they are a source of rich satisfactions and pleasures. Both aspects of training, then, become necessary to a well-rounded program for leadership training in trail camping.

Because so many camps specialize in their own way, the content of the training program may vary. The selection of material for such a program must be based upon the knowledge and skill that the staff already possess and the knowledge and

---

<sup>1</sup> Rudolph M. Wittenberg in *So You Want to Help People* (New York: Association Press, 1947, \$3.00).

skill that will prove most valuable and helpful during the camping season.

Trail counselors should be encouraged to participate in short-term training courses or seminars where the physical skills are stressed. They should be given the opportunity to talk with other persons who might have similar responsibilities in another camp and be referred to special articles that bear upon their specialties. There are many such resources in every community. Training, then, really begins far in advance of the opening of camp.

Most camp directors depend upon the pre-camp training period in the camp setting as the most concentrated effort in the total training program. Four days should be the minimum for adequate training, with seven being more desirable. Many skills are interrelated. They can be divided, however, into two groups as the basis of the intensive training program. The kind of trail camping to be done will determine the specific skills to be included, but those listed here are general enough to cover practically all types.

### **Physical Skills Needed for Trail Camping**

- |                           |  |
|---------------------------|--|
| 1. Axemanship             | 9. Tent pitching or shelter making   |
| 2. Cooking and baking     | 10. Use of all equipment and tools for repair  |
| 3. Knot tying and lashing | 11. Paddling, riding, hiking, or climbing (depending upon the means of transportation) |
| 4. Fishing                |  |
| 5. First aid techniques   |  |
| 6. Use of knives          |  |
| 7. Fire building          |  |
| 8. Packing equipment      |  |

### **Leadership Skills and General Information Needed**

1. Knowledge of the campers—taking into consideration the size, age, personalities, individual differences, maturity, and experience.
2. Route planning—keeping in mind distance and length of stay (determined by the qualifications of the group), including points of interest, campsite selection, sources for drinking water, telephones or signals for emergencies, avoiding hazards, and so forth.

3. Food planning—in relationship to quality, quantity, balanced meals, varied menus, recipes, and packing.
4. Clothing and equipment—knowing what is needed by including the right things and eliminating the unnecessary.
5. Understanding the values of trail camping—what it means in terms of over-all philosophy and objectives, and the concept that the trip is a means to an end.
6. Knowledge of territory—in relationship to opportunities for trail camping; geology, birds, animals, and fishlife.
7. Public relations—in respect to private property, the people that are met along the way, the group's general behavior, and the condition in which the campsites are left.
8. Teaching skills—knowing how to teach the appropriate physical skills to campers.
9. Map and compass reading, as well as knowing something of weather signs.
10. Health and safety—knowing what to do in emergencies, giving attention to proper clothing, closely supervising the preparation of food and dish washing, eliminating all possible hazards.
11. Conservation appreciation—teaching campers the importance of conserving natural resources as they encounter them on the trip; having both knowledge and respect for all regulations relating to conservation.
12. Program resources—using the natural things about them, being prepared with ideas as to what can be done in bad weather.
13. Recognition of spiritual growth—a consciousness of the handiwork of God in nature; the operation of natural laws in the universe and man's relationship to these laws and to God.

The pre-camp training must be quite thorough and the in-camp training from this point on must be done largely between trips. From time to time throughout the summer many aspects of the training must be re-emphasized and clarified. The experience itself takes on new meanings for the counselor after he has participated in it. Counselors themselves will point up many of their weaknesses by the types of questions they ask and the help they seek. In-camp training plays a vital part in the

total program of leadership training. There is no one time and no one place during the summer, or winter for that matter, when one can let up on the training program. After the counselor has had the actual experience of being alone on the trail he is more ready to receive and accept further help.

### **Methods of Training Trail Leadership**

Motivation is just as important to counselor training as it is to camper training. The program will reap greater benefits when it is well thought out, well planned and well executed. Counselors must understand the purpose of trail camping and must realize that their training is actually preparation to teach and instruct campers.

Training demands a great deal of time, since ample opportunity must be given over to practice. The sessions should not be too rushed, and the atmosphere should probably be kept a little more informal than in some of the other sessions. In order to acquire a physical skill efficiently a correct start is of great importance. Demonstrations do not provide the skill, but they should show the learner what to do in order to acquire it. As in any other area of work, no one feels competent unless he has a thorough knowledge of it and until he has actually put to use the things he has been learning.

The following are some methods by which the contents can be presented.

1. *The unit-experience approach.* Probably there is no other one method quite so effective as this. The staff should have an experience in trail camping similar to the experience the campers are to receive. If the trip is a trek up the mountains, the staff should be taken up into the mountains sometime during their staff training period. If the trail program is carried on in canoe country, the staff needs to be provided with such an experience. Learning takes on greater meaning when done in realistic situations. The training begins right from the start; from the planning to the check-in procedure. Where do we go? What do we wear? Who is going to plan the menu? How should we pack our equipment? Which is the best way of organizing our responsibility? These and many more questions can be answered as the unit-experience

takes on new meaning. The group goes to a campsite where meals are cooked and where shelters are made. All this is done in the natural setting of the great out-of-doors. People tend to learn more quickly when they eat the food they cook, or sleep in the beds they prepare, or reach the destination for which they planned. There is no substitute for experience.

2. *Demonstration and practice sessions for learning physical skills.* This method could very well precede the first method described. One, or possibly two, can demonstrate for the group, with the practice sessions taking place in smaller groups. After these preliminary learning sessions, the unit-experience can take place. Here reference is made to such things as fire building, tent pitching, cooking and baking, and axemanship. In the unit-experience leadership skills are implied as well. Again, it becomes important that the demonstrator make a good presentation and that he capitalize on all teachable moments.

3. *Cook-Outs.* If for some unavoidable reason an overnight camp-out is not possible, a single experience such as preparing and eating a meal or two away from the dining hall should be provided. This is a minimum and does not provide the training of an overnight experience.

4. *Resource persons.* Such people can be used to good advantage during a staff training period, especially when the ones secured can supplement the talents of the camp staff. Specialists in the field of conservation, nature lore, and campcraft skills can add a great deal to a training program.

5. *Field Trips.* A knowledge of the immediate area of the camp is important for orientation for both new and old staff persons. To visualize the camp as part of a larger community adds meaning and significance to the over-all program.

6. *Visual aids.* Be selective in choosing visual aid materials, but use them to supplement the training. Movies on nature lore, conservation, campcraft, water safety, and health are all very helpful.

7. *Discussion groups.* Thought can be stimulated by having the entire staff group share in common problems and in general topics. The give-and-take of ideas is a great aid, especially helpful to the new counselor when he hears of some successful idea which has been tried by a returning staff member.



8. *Book reviews.* As part of the staff training program, book assignments can be made in advance. By this means a staff member becomes familiar with some of the resources and reports his summary to the group.

9. *Crackerbarrel sessions.* Informal chats around the idea of trail camping fills in the training gaps. Questions from the new men can be discussed and a sharing of actual experiences can boost the confidence of the new staff member.

All the methods above relate to the staff training period itself. While the camp is in session certain things can be done to continue the training. The opportunity for such follow-up may be limited, but the following methods should be considered:

1. If a new man needs help, another experienced counselor should go along on the first trip. In some cases a junior counselor can fill the role. However, this must be done with the understanding that the regular cabin counselor is responsible for the activity of the entire group. The second man is along only for the purpose of coaching and sharing his general knowledge. His presence is for training only, and to give more confidence to the new counselor. This practice should not be repeated too often because, if the right kind of leader has been selected in the first place, he should have been orienting himself well enough to be able to conduct the second trip himself. The number in the group will determine the number of leaders required, but, if at all possible, the group should be small enough so that one counselor can handle the job.

2. In some trail programs it might be possible for a program aide from the camp to make a supervisory visit. If this is done, proper conditioning is necessary to insure opportunity for greater learning without the development of any negative aspects.

3. After staff members return from their trips, common problems should be discussed and further training needs determined.

4. A briefing of the counselor by the camp director before and after the trip can be of great help. Such things as (1) camper grouping, (2) identifying and analyzing behavior difficulties, (3) cautions against hazards, and the like can be discussed informally.

Training for the trail program requires continuity. Any program suffers if the turnover is too rapid and if new people must conduct it each year. The long-range plan should give consideration to staff needs two and three years in advance. Some camps have used a counselor-in-training program. This is an important aspect to trail leadership, if there is to be a steady flow of qualified leaders each year. During the period when older campers are still too young to carry the entire responsibility they should be assigned to an experienced counselor and should assist in the leadership of a trip as part of their training. This type of counselor-in-training program will provide the leadership for future years.

It is more and more evident each year that the median age of campers is becoming alarmingly low. It is more apparent that older campers need a different kind of experience from that which is offered by most camps with a centralized layout. Therefore, one solution is decentralized or trail camping. To make trail camping a truly worthwhile experience, trained leadership is absolutely essential.

## 5

### HEALTH AND SAFETY ON THE TRAIL

One of the prime objectives in camping is the health and safety of campers. Their welfare on the trail is almost wholly dependent on the planning and training for the experience, and the judgment and capabilities of the trip leader.

#### Preparation for the Trip

These are the important factors related to health and safety on the trail that need to go into the preparation for the experience:

##### A. *Trip destination*

A trip schedule should be planned and left with trip director at the base camp. In case of accident or unavoidable delay a searching party then will have a definite idea of the territory in which to look for the group.

##### B. *Campcraft tools*

Instruction in the proper use and care of campcraft tools, such as the axe, saw, hammer, wedges, draw shave, cant-dog, and knife, is important. A sharp axe is the safest. The small hatchet is a dangerous tool in the hands of an inexperienced woodsman. The novice should practice with two-hand axe selected according to weight of head by an experienced person. Tools, such as axes, knives, saws, and draw shaves, should be kept in a leather sheath when not in use.

##### C. *Clothing*

The proper selection of clothing and footwear should not be overlooked. Warm clothing for cool evenings should be included and also proper foul-weather gear. The footwear prescribed should be a sturdy leather shoe, ankle high, with a good composition sole. Depending on the length of the trip, sufficient socks should be taken along and changed daily. It is well to avoid foot blisters, for they can develop into a serious infection.

#### *D. Food and Water*

Menu planning is important and the camp food service director should be consulted. Perishable foods to be taken on an extended trip should be limited, and the menu so arranged that these foods are used first. The use of dehydrated foods is good practice, for it cuts down considerably on packing space and weight. The menu should include only such foods as the counselor and campers are experienced in preparing. The supply of drinking water should be anticipated and, if safe water is not available along the trail, it should be packed. On extended trips where questionable water supply is to be used, a few drops of Clorox in each gallon of water or the use of halazone tablets is recommended.

#### **First Aid on the Trail**

First aid is the emergency treatment given in case of accident, injury, or illness before regular medical or surgical treatment can be obtained. In the event of an accident, a camper must have complete confidence in the ability of the counselor to secure help if needed, to know the principles of first aid, and to administer them. Should the camper be unconscious, each member of the group should be given a task to perform in assisting with the injured. Campers should remain quiet and calm. This attitude is essential if the injured camper is to receive proper aid.

Each group leaving camp should be provided with a first aid kit containing the following standard items:

Green soap	Gauze compresses
Alcohol	Boric acid powder
Merthiolate	Unguentine
Aspirin	Band-aids
Salt tablets	Tweezers
Calamine lotion	Needle
Mentholatum	Tourniquet
Cotton	Scissors
Aromatic spirits of ammonia	Thermometer
Adhesive tape	Insect repellent
Bandages	First aid book

The contents may be modified depending on the extent and

nature of the country through which the group will travel. If it happens to be country in which poisonous snakes are found, a snake-bite kit should be included.

Some of the more frequent situations needing first aid care and the methods of treatment are as follows:

*Insect Bites.* Bee or wasp stings: remove stinger at once, wash well with soap and water, apply cold compress to relieve pain. All other bites are treated in the same manner. When itching starts, aromatic spirits of ammonia or calamine lotion is used to relieve irritation.

*Poison Ivy.* Remove clothing that has come in contact with the ivy. Wash the affected part well with soap and water and apply rubbing alcohol. This procedure may prevent an attack. If itching occurs apply calamine lotion, and bandage loosely.

*Burns.* Burns received from direct heat may have large watery blisters. Puncture carefully with sterilized needle to eliminate tearing away of the top of the blister, which acts as protective covering for injured surface. Then cover area with ointment supplied in kits, and bandage. Burns received from too long exposure to the sun can be given cold water applications, which will bring temporary relief from severe burning. Sunburning is then treated like any other burn.

*Blisters.* Blisters received from friction, as on the hands from paddling, or on the heels from boots: puncture blister with sterilized needle and then cover the area with a pad to keep pressure away from the blister.

*Eyes.* Foreign body: if the foreign object cannot be removed with a simple procedure, such as the corner of a handkerchief, cotton applicator, or by washing with 2 per cent solution of boric acid, professional help should be obtained. Neither force nor a sharp instrument should be used. On occasions when the foreign object is washed out with solution or tears, the discomfort remaining from the scratching of the eyelid or eyeball will disappear if the eyes are kept closed for a time.

*Sty:* This is infection on the margin of the eyelid. First appearance is red and painful, and then within a day or so, a tiny abscess forms. Do not attempt to force open with pressure

or a sharp object. If hot compresses are applied, the abscess will rupture spontaneously, and in most cases there will be no need for further treatment.

*Heat Exhaustion:* Camper complains of dizziness, loss of energy, and nausea. Give liberal amounts of water, one salt tablet every three hours until four have been taken. Camper should rest in a cool, shaded place until symptoms disappear.

*Temperatures:* There are many causes for an elevated temperature. Most common of these occurring on the trail are head colds, sore throats, appendicitis, fatigue, and dehydration.

*For sore throat and head cold,* isolate the camper and give him large quantities of water, two aspirin tablets every three hours for first twelve hours, and make him rest, if possible.

*Dehydration:* Give two salt tablets three times daily and force fluids.

*Appendicitis:* If the camper complains of abdominal pain, nausea, vomiting and has an elevated temperature, appendicitis should be considered. The abdominal pain will be generalized at first, later localizing in right lower abdomen. When lying down knees will be flexed; walking or standing, the camper will do so leaning forward. If all these symptoms occur, *camp should be notified as quickly as possible.*

*Diarrhea:* This is an excessive frequency of stools, caused by overeating of any one certain food, such as dried fruits, or rye krisp, or from poorly washed cooking and eating equipment. All food and drink should be restricted for twelve hours, then small amounts of water or boiled milk taken before trying a full diet.

*Fractures:* No attempt should be made to set a broken bone or reduce a compound fracture. If the skin is broken, wash well with soap and water, check for hemorrhage, apply merthiolate and cover with bandage. Splint the fracture before transporting camper.

*Sprain:* This is a strain of the soft tissue surrounding a joint, producing bruising of ligaments and muscles. Apply cold applications immediately, elevate injured part to prevent swelling, and then bandage. Heat may be used later to increase circulation. Should severe pain persist with motion, sprained part should be checked for fracture.

*Drowning.* A complete knowledge of an approved technique of artificial respiration is imperative. Camper is placed in prone position between blankets, to retain body heat. The body should be placed with the head to one side, lower than the chest and resting on the forearm, and the tongue drawn forward. (Techniques of artificial respiration should be demonstrated during staff training period.)

*Isolation:* Any illness that might be transferred from one camper to another should be isolated. On the trail this is difficult. Separate the camper from the group while sleeping and boil his drinking and eating utensils.

*Procedure for cleansing wounds and checking hemorrhage:* Any excessive bleeding can be considered a hemorrhage. If an artery is cut and blood spurts from vessel apply tourniquet at once. If the artery is cut where a tourniquet cannot be applied, pressure must be used. In either case a doctor should be summoned. Bleeding of the veins can be stopped by applying snug bandage. Caution should be used when redressing to avoid recurring hemorrhage. Any wound that has free outward opening can be treated as follows: check for hemorrhage, cleanse wound with soap and water, remove any foreign material, and then apply merthiolate and bandage. If the wound is large and gaping draw edges together with adhesive strips. It is not advisable to sew a wound; the sterile technique needed to suture is difficult to obtain on the trail.

*Diets and sanitary food preparation:* There are planned menus to be used when preparing for a trip. Well-deserved emphasis has been placed on the importance of an adequate, well-balanced diet and good eating habits. Food should be well prepared and attractive. Sufficient time should be allowed for eating, with conversation of the type that is conducive to appetites. It is well to make breakfast the large meal of the day. Cooking and eating equipment should be sterilized once each day. Boiling in covered utensils for thirty minutes, then drying and storing under cover, will keep them free from most bacteria. Individuals handling food must be scrupulously clean.

When traveling through areas in which the *wood tick* is

known to be a resident it will be necessary to have a complete physical *inspection* of every hiker at the conclusion of the day's activity. If ticks are found take them out by twisting counterclockwise and touch the opening with merthiolate. All ticks are not large, so be on the lookout for the small "seed tick."

### **Discipline on the Trail**

All trips away from the main camp involve hiking to a more or less degree, and here the trip leader should be alert to fatigue on the part of the campers. Oftentimes hiking trips are too ambitious, too strenuous, and the schedule not intelligently planned. It is well to remember that hikes are not endurance contests. Keep the group together and govern the pace to the ability of the slowest camper. The leader in charge should take up a position in the rear and designate a competent camper or junior counselor to take the lead. During the heat of the day, the pace should be slackened, and frequent rests permitted in the shade. The hiking trail may encounter farm fences, abandoned buildings, and other interesting places that might suggest exploration. The respect of private property should be thoroughly understood. Also the camp group should be discouraged from exploring and ransacking abandoned buildings, mine holes, factories. The mark of good leadership is to anticipate dangerous situations and avoid them. If travel by foot takes a group along a public highway, the group should be directed to hike in single file on the left-hand side of the road facing oncoming traffic. After darkness, the hikers should expose white clothing, and the counselors at the head and the rear should each have a light. At no time should hiking be permitted on railroad tracks or over a trestle.

### **Weather Precautions**

Occasionally serious accidents have happened during violent electrical storms which have caught up with trail camp groups. When the warning of an approaching storm is heard and witnessed, the leader in charge should seek proper shelter for his group. Do not seek the shelter of a large tree, for lightning has a habit of being attracted to a high, conspicuous object. It is best to seek the shelter of a small tree growth or a building.



When in a building do not stand before an open doorway or window, and keep away from electrical appliances and exposed water pipes. If a storm is brewing when campers are swimming, they should be immediately called ashore and directed to a shelter.

Sudden storms and high winds are frequent on lake and river canoe trips, and when they do occur, the group should beach and seek shelter. If a canoe capsizes, the group is instructed to stick with the canoe until help arrives.

### **Shelter**

The type of shelter to be taken on extended trips will depend upon the mode of travel and the kind of equipment available. The Adirondack type of canvas shelter is readily transported and easily erected. A canvas fly measuring 10'x12' can be made into a practical shelter. All shelters should be erected with the back against the prevailing wind, and the surrounding area trenched, so that rain will not wash in and soak the floor of the shelter.

(See page 92 for further notes on shelters.)

### **Swimming Precautions**

Swimming areas should be checked for hidden rocks and tree stumps, soft bottoms, drop-offs, and holes; and campers should be restricted to the area that has been inspected and declared safe for swimming by the trip leader. The same standard of supervision should be required as for that of "in-camp" swimming. Campers should "buddy up" and swim in sight of the counselor on lifeguard duty. They should not be allowed to swim when they are overtired, after dark, or for an extended period of time.

On a canoe trip one person should remain on shore with a canoe during the period of swimming. Under no circumstances should swimming be permitted from canoes.

### **Check-Up on Return From Trip**

On return to the main camp from an extended trip the trip leader should make a written report of the experience. Injuries and sicknesses should be reported to the camp physician and nurse. Each camper should be checked on his physical condition and should take a hot bath.

## 6

### **SANITATION ON THE TRAIL**

An important rule to follow in sanitation in trail camping is to leave a campsite in better condition than before its use. The particular sanitary measures to be used depend upon the length of stay, weather, climate, and the character of the terrain on which the site is located.

The following procedures would seem to be the necessary routine sanitary measures that should govern all trail camping groups.

#### **Selection and Preparation of the Site**

The day's trip should end early enough to give adequate attention to the many details necessary for the making of a comfortable camp. A three-hour interval between the end of the day's trip and dusk would seem to be sufficient time for this purpose. In setting up the temporary site a study of the immediate area should be made to make sure that it is free of any possible contaminating waste material that might attract flies, and also to make sure that it is free from poison ivy, oak, and sumac.

#### **The Water Supply**

Since it is difficult to carry water for more than a day's supply, it is important to consider with the greatest of care the source of drinking water found on, or near, the campsite. This source, unless there is evidence of approval by a local or state health department, should be regarded as contaminated, and treated accordingly.

There are several methods of water purification: The water selected should be as clean as possible, and the heavier organic matter removed by straining or settling. A shallow pit, dug four to five feet from the edge of a stream or pond and below

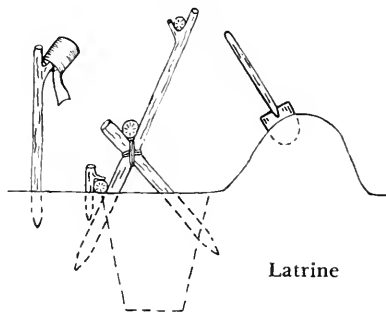
the water level, makes a good settling basin. Straining water through a clean handkerchief is also an additional aid for reducing the amount of foreign matter from the liquid. The objective is to get water as crystalline clear and tasteless as possible.

1. Boiling is the safest method for purification, but it is generally undesirable because of the flat taste, which comes from lack of oxygen. Five minutes of continuous boiling is required for sterilization of water. Moreover, after the operation is completed, care should be taken that the water is not contaminated again by putting it into containers that are not thoroughly clean.

2. Chlorination is another method. Calcium hypochlorite is used in sufficient amount to give water a deep yellow color. This represents about one part per million of chlorine. Canary-yellow means underchlorination, and orange-red overchlorination.

3. Probably the simplest method is to use halazone tablets in proper proportions according to instructions.

4. Iodine may also be used. In the absence of halazone or calcium hypochlorite, tincture of iodine may be used as a temporary expedient. Two or three drops will purify one canteenful of water. Wait thirty minutes after purification before use.

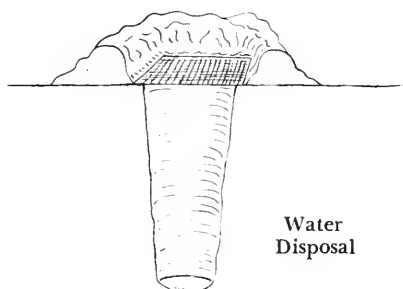


## The Latrine

The disposal of human waste on a temporary site is best accomplished by the construction of a latrine. The size is dependent on the number of campers. The straddle trench is the most widely used. This type of latrine is used for the disposal of human feces and urine in camps of less than one week. It is usually constructed by digging a trench one foot wide, two feet deep, and from two to four feet long. The earth removed should be piled at one or both ends of the trench, and used by each camper to cover his excreta. This is essential in order to prevent access of flies to human excreta. A shovel and pick should be part of the camp-

ing gear. If possible, boards should be placed along the edges of the trench to provide better standing. A straddle trench should be closed by refilling with earth when the contents have reached within a foot of the surface of the ground. A roll of toilet paper on the end of a stick forced into the ground at a convenient location, and covered with a cut-down No. 10 can to keep it dry, completes the project. The trench should be dug from 100 to 200 feet from and below the water supply. Campers

should be required to wash the hands with soap after using the latrine.



### **Disposal of Kitchen Waste**

Kitchen waste consists of the food remnants accumulated after meals and in the preparation thereof, as well as the water in which kitchen uten-

sils and mess gear have been washed. Left-over food will spoil and become contaminated unless refrigerated at a temperature lower than 50 degrees. Since there are no facilities for refrigeration on the trail, unused, leftover food should also be treated as garbage. For camps of short duration, one night to a few days, solids may be disposed of by burial, either in a deep pit or in a trench about two feet deep. At least one foot of earth should be refilled over the garbage.

A waste-water disposal pit should be constructed as shown in the illustration. The square of hardware cloth which is laid over the pit should be cleaned regularly by holding it over a flame until food particles and greases have been destroyed. Care should be taken not to melt the solder.

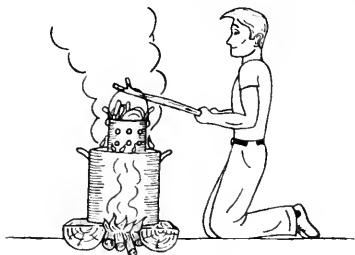
Waste paper should be burned, with special care taken that fire does not spread.

### **The Washing of Dishes and Mess Gear**

To wash dishes and mess gear properly requires three different containers. Two of the containers hold warm water, while the third remains in the fire with boiling water. Before the process is begun, all matter is scraped from the mess gear and placed in a container or paper for that purpose. In the first

water, soap or dishwashing compound is dissolved. Here likewise is placed a dish mop. A camper takes the mop and goes over the entire gear, cleaning it of any particles of food.

The second container is merely rinse water. Into this the gear is dipped, thus removing the soap and any particles of food that may have clung to it.



Dish Sterilizer

The third container on the fire, full of water boiling violently, is the sterilizer. The equipment is dipped herein and held until three minutes have elapsed. From this point the gear goes onto a

line between trees, or on a nail, or back into the carrying case, depending upon the situation and general convenience.

### Personal Hygiene

Washing upon arising, before meals, after visiting the latrine, and before retiring, is exceedingly important to prevent the development and transmission of disease. The practice of good sanitation on the trail will make the difference between an ordinary trip and a highly successful one. Good sanitation will return the party to camp in a healthy condition. On the other hand, poor sanitation may ruin the summer for a camper through a serious illness.

## 7

### **DIRECTION FINDING—THE USE OF MAP AND COMPASS**

In "real" camping, such as wilderness camping, safety rules on trips should be thorough in detail and strictly enforced. At this point freedom of choice and action must be sacrificed in favor of safety. Leaders particularly should be well grounded in direction-finding techniques and impressed with the seriousness of their responsibility in this connection. This does not eliminate the importance of campers' receiving instruction, too, developing the "know-how." There should be no difficulty, as counselor and boys travel through woods and over strange lakes, to relate the instructions to practical experience in survival and comfort. Oftentimes fun can be added by making games, competitive or otherwise, of the instruction.

#### **Maps**

One of the most important phases of trip preparation is the securing and studying of the best possible maps of the area to be traversed. Ordinary road maps or tourist maps cannot be trusted. Maps showing accurate detail should be secured from the government departments, such as the U.S. Geological Survey, state forestry or conservation departments, or the Canadian Department of Mines and Resources. There may be a small charge for such maps, but they are worth many times the cost, and there should be enough of these maps to permit the posting of one on the camp bulletin board and providing a copy to each counselor. The proposed trip should be laid out carefully on the map, and the map consulted frequently during the trip. Good maps will reveal natural obstacles to be avoided. The Canadian canoe maps indicate lakes, streams, portages, rapids, falls, and the regular canoe routes. The length of portages is marked in chains or rods. (One mile is equivalent to 80 chains or 320

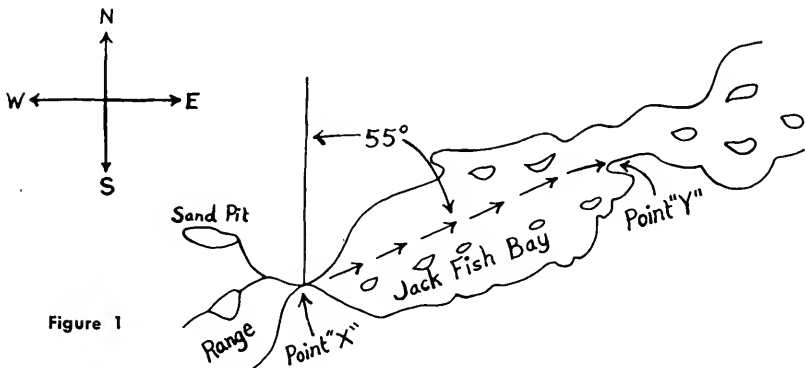
rods.) In studying a map or laying out a course, lay or hold map so that north and south lines upon it will exactly parallel with north and south lines of the compass needle.

Because of the practicability of maps in finding and following direction, campers should learn to make them, not necessarily technically correct in every detail, but with directions and symbols sufficiently clear to make them useful and reliable. As part of the training and experience in this, campers might make a map of the camp and surrounding area for some miles, showing geographical relationship of camp to other nearby points of interest and proper symbols, the latter agreed upon by the camp and similar to, or the same as, those on the professionally made maps of the country. Map symbols usually needed are those for trees, woods, lakes, ponds, streams, fields, railroads, marshes, portages, trails, bridges, dams, houses, villages, mills or lumber camps, roads, elevations. Each camp may have certain symbols peculiar to itself because of its special situation.

### The Compass and Its Use

The map is not too useful without a compass. But together they form a team which is almost unbeatable. It is wise to invest in a good compass—not necessarily a costly one, but one with a good degree of accuracy. The simple ones (those with only a needle and a face which is calibrated in degrees) are the best.

This is the way the trip leader would use a map and compass in connection with a canoe trip. With his group he first picks his destination for the day and sets up a tentative route.



Suppose he is starting out on a large open area of water such as at the bottom of Jackfish Bay (Point X in Fig. 1) and he wants to travel toward point "Y." He estimates the angle of travel to be about 55 degrees east of north. He places the compass along the bottom of the canoe in front of his feet, and points the "North 55 degrees East" direction on the compass face toward the bow of the canoe. Then he turns the canoe so the north-pointing arm of the needle meets the N position on the compass face. Now all that he must do is to maintain the north point of the needle lined up with the north mark on the compass face as he journeys up the lake.

Here is a second type of situation—that in which the canoeist finds himself at the edge of a small lake which he must cross to the next portage. He scans the opposite shoreline until he finds a likely-looking spot for a portage and then checks it with his map and compass. If the spot doesn't agree in direction with the map, he doesn't go that way. Instead, he follows the direction indicated by the map before following his own intuition.

A third type of situation is one in which the canoeist is guiding along a lake which has many islands and peninsulas. The canoeist now is meeting one of the greatest navigation challenges of his canoeing career, for here he must remember that some pieces of land may look like mainland, but may very easily be large islands and vice versa. He also remembers that it is easy to take the wrong turn and find himself trapped in a bay with no outlet. So he keeps a close watch on both map and compass and observes all islands, bays, peninsulas, and rivers and checks them periodically with his map. Again he knows that the compass is more accurate than his own "sense of direction." Also, he always believes the compass in preference to the shoreline contours because the latter can be very deceiving.

Now that the canoeist has followed his course across a lake and is in plain view of shoreline he begins looking for the portage. Some portages are marked with signs but many are not, and it becomes necessary for the canoeist to determine logical places for them. He knows that they are usually found in the low areas or by streams. If he is not following a well-traveled canoe route he may find that the portages have been covered by fast-growing shrubs or trees. Sometimes he finds it helpful to get out of the canoe where he thinks the portage is, and look



around for obscured trails or blazes on trees. In general, all portages and trails are blazed with one mark, the blaze going through the bark and into the wood. The trees are blazed at regular intervals along the trail.

Nobody is "lost in the woods" until he thinks he is—when he suddenly feels his spine tingling, his heart thumping, and his mind a complete blank. But actually he is not lost; he has merely misplaced himself. Fortunately, he remembers that the best thing to do is to sit down for five minutes and collect his thoughts. He soon finds that his mind does become clearer and he can then begin to figure where he is according to the map. He never admits to his group that he is "lost" lest he lose their confidence as well as his confidence in himself. If he does not arrive at a solution to his problem, he then retraces his steps until he knows his exact position on the map.

The campers also can gain the thrill of the woods by taking their turns at guiding. However, the counselor always keeps a close check on his group's position with his own map and compass.

*The counselor keeps his group TOGETHER at all times on the trail. NEVER does the group split up in search of a portage, trail, or lake.*

It is important that leaders and others on trips learn to keep their eyes open and to make mental note of important landmarks, not only to spot them on return trips, but in order to tell others (who may take the same trip later) what to look for.

### **Substitute Compasses**

If one has a watch and the sun is in view, one has a substitute compass. Point the hour hand to the sun. In the morning, halfway between the outside end of the hour hand and noon is due south. In the afternoon one must reckon halfway backward. For instance, at 8:00 A.M. point the hour hand to the sun and find the place halfway to noon. It will be 10:00, which is due south. At 4:00 P.M. point the hour hand at the sun and reckon halfway, and the south will be found at 2:00.

Or, if the sun is hidden but there is enough light to cast the slightest shadow, hold the watch face up, place a match, or similar article, at the outer edge right at the end of the hour hand. Turn the watch until the shadow of the match falls along

the hour hand. At noon the hour hand will point directly south. Before noon south will be halfway between the hour hand and 12:00, going backward on the watch.

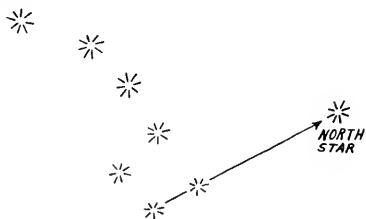
There are other helps in direction finding that might be called "Nature's compasses." A well-known star group is the Big Dipper, or Great Bear, in the northern sky. Two stars forming the edge of the dipper always point to the north star.

In the dense woods (not out in the open spaces) there is more moss to be seen on the north side of tree trunks than on other sides. (This may not be true near the base of the tree, so look higher up the trunk.)

Feathery tips of pines and hemlocks usually point in an easterly direction. Bark and tree rings show greater growth on north and northeast sides of the trees.

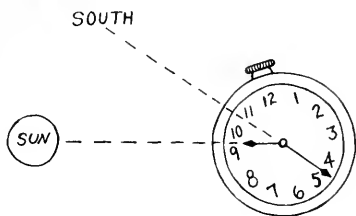
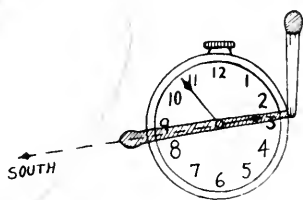
There are many other clues to direction, more or less reliable, to be found especially in Indian lore.

### Other Directional Signs



of the first group to the leader of the second; or, perhaps such a map has been left at a prearranged spot; or, the individual or party merely picks up a marked trail.

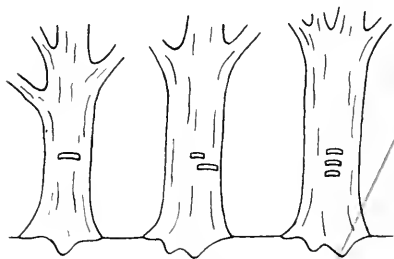
Each camp should have the fun and experience of developing a trail code appropriate to the natural settings and surroundings of the area in which the trips are taken. There are the usual tree blazes, stone piles, knotted grass, or broken



Watch Compasses

Sometimes direction finding involves locating the trail of another group of trail blazers and following it to a meeting place. Perhaps a rough map of the area and trail has been given in advance by the leader

twigs. It is well, of course, that the campers can read the signs that most woodland travelers use.



Tree Blazes

Permanent trails are marked with tree blazes which will remain as long as the trees stand, made by cutting off a piece or pieces of bark. One little blaze means "This is the trail." If it has a larger blaze to one side and below it, it means that the trail turns in the direction of the larger blaze. Three little

blazes, one over the other, means "Stop" or "Warning" or "Look around."

When walking far into the woods, especially if alone, it is a good idea to break twigs on bushes at intervals as you go along. It is easy to get lost, and such signs will help you get back to camp. A person or a group wishing to help others find their way use smoke signals to attract attention and indicate direction.

On canoe trips one party may wish to indicate to another at the shoreline which way to go, left, right, or straight across the lake or stream. This can be done with directional signs made of rocks or driftwood. If one party follows another at a portage, and there are two trails, the first can indicate which trail is being used and which is open by placing logs at the beginning of the trail—horizontally across meaning "This trail in use—take the other"; or laying log in line with trail meaning "Take this trail."

## 8

### THE HANDLING AND CARE OF TOOLS

In preparation for experiences in living in the out-of-doors, campers need to gain an expert knowledge and skill in the handling and care of the tools that are most essential in trail camping and camp construction projects. The early American pioneers literally hewed a civilization out of a wilderness with an axe. In colonial days, axes were made by local blacksmiths, each according to his own ideas, and to some extent, according to the need to which it would be put in his own locality. This resulted in the development of particular styles of axes in Maine, New Jersey, Hudson Bay area, Kentucky, Michigan, Wisconsin, and other parts of the country.

#### Axemanship

There are two main types of axes in general use today—the poleaxe and the double-bit axe. The double-bit axe is not recommended for boys and girls' camps, because of the skill that is required for its safe use. The skill in the use of a single-bit, or in lumberjack language, the poleaxe, can be readily acquired, and the axe used with maximum safety.

#### Types of Poleaxes

There are three types of poleaxes. Two of these are referred to as three-quarter axes. The handles are twenty-eight inches long, and the bit weighs two and one-half pounds. The pulpwood axe is used in pulpwood logging where the trees are about one foot in diameter. Many manufacturers list this axe as a boy's axe. The cedar axe is an excellent axe to use where bramble and brush must be cleared before a tree can be chopped. The three-quarter axe is preferred by many camps for canoe and hiking expeditions. However, the full-length thirty-six-inch poleaxe, with a three and three-quarters or not more than a four-pound blade, is the best all-around axe for use in all types of projects in a woodcraft program. Learning to chop

properly is a science, and a full-length axe is essential. One might as well expect to become an expert in golf or baseball by using a short length golf club or baseball bat!

Another type of axe is called the brush hook axe. It is ideal for clearing thickets, cutting briars and other small growth. This tool has a hooked blade about one foot in length and is attached to a thirty-six-inch handle. A blade of three to three and one-half pounds is recommended. It should be used only by a counselor or experienced older campers.

### Care of the Axe

A sharp axe is a safe axe! This should be the motto for all axemen. Dull axes, instead of cutting in, often glance off and cause accidents. An emery stone or power wheel should not be used for sharpening an axe. Heat will be generated, and the temper of the axe will be damaged. Axes which are purchased from a reliable manufacturer are usually ground to proper proportions. It is better to hone an axe each time before using. A hard, fine-grit stone is recommended for this purpose. The honing stone should be rubbed in a circular motion over the axe edge, from heel to toe. On the opposite side of the blade repeat the honing from toe to heel (Figure 1).

For occasional sharpening, use a ten-inch flat file with a coarse, fast-cutting edge on one side and a smooth side for finishing. Begin by filing the flat side of the blade about one-half inch from the edge (Figure 2).

Work for the fan shape (Figure 3), going back about three inches from the edge at the center point. File only on the forward stroke.

Next file the bevel using the smooth side of the file (Figure 4). Begin at a point one-half inch from the edge and roll the bevel down to the edge, stroking toward the head of the axe. Repeat this whole process on the opposite side of the axe. Finish the job by honing the axe.

An axe that is badly nicked will need to be put in shape by using a grindstone. The grindstone should be kept wet and turned slowly. Lift the axe from the stone at frequent intervals, to avoid gen-



Figure 1

erating heat. Turn the grindstone so that it revolves toward the axe (Figure 5). Follow the same routine used in filing the axe.

An axe sheath<sup>1</sup> should be a part of each camper's axe outfit. This is a fine safety precaution. At the same time, the axe-



Figure 2

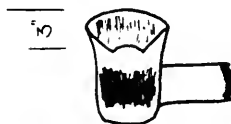


Figure 3



Figure 4

sheath keeps the axe edge from being nicked, and prevents rusting (Figure 6).

An axe should never be placed near an indoor or outdoor fire. Heat may destroy its temper. Chop around a knot rather than through it. Avoid cutting into the ground. Dirt and stones will dull and nick the edge. A cold axe is brittle and easily chipped, hence in cold weather it is a good precaution to warm the axe before using.

The axe should "line up" properly. The cutting edge should be in exact line with the center of the handle (Figure 7).

A loose axe handle is dangerous and should never be used. The "hang" of the axe is very important. To determine this, place the axe on a table so that the cutting edge of the blade and the end of the handle touch the surface. Most woodsmen prefer that the cutting edge should touch about one-third from the heel (Figure 8).



Figure 7



Figure 5



Figure 6

---

<sup>1</sup> Made-to-order axe sheaths may be purchased from the J. P. Yoder Company, Reading, Pa.

prevent warping. Axe handles break frequently and the broken part is not easily removed from the blade. If it is necessary to loosen a broken handle, bury the blade in the ground and build a fire over it. The earth prevents the fire from damaging the temper of the blade. An axe handle will stay tight longer in a damp place than in a warm dry place. Wedges help to hold the handle tight in the eye of the axe. Seasoned hardwood wedges are to be preferred to iron wedges since the latter may unbalance the axe.

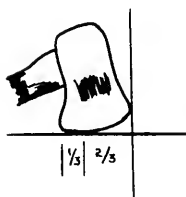


Figure 8

### Aids in Chopping

To the onlooker, chopping is a simple procedure—merely taking the axe and swinging at the wood. However, it takes years to become an expert chopper. Here are certain fundamentals which are not too difficult to master and the application of which will make chopping faster, easier, and safer:

1. *Hold.* The left hand should grip the axe just above the knob at the end of the handle; the right hand about three-quarters of the way up the handle. The left hand maintains a firm grip; the right hand moves freely up and down the handle.
2. *Position.* If the log is small enough, cut a V on one side, then roll it over and cut a V on the opposite side so that the two cuts will meet. On larger logs stand on top of the log and chop on one side between the feet—then reverse position and chop on the opposite side.
3. *Eye.* Keep your eye on the spot to be chopped and not on the axe.
4. *Swing Easy.* Let the weight of the axe give the power to the chop. Good aim cuts more quickly than force. Try to acquire a rhythmic swing.
5. *Correct Angle.* Always cut at an angle of about fifty degrees. Cutting straight at the log results in a rebound and dulls the axe. The angle blow cuts with the grain and removes the chips in the cut.
6. *Width of Notch.* Make the width of the notch just a little more than three-fourths the diameter of the log to be cut.

## Chopping Strokes

*The Forehand Stroke.* Note the standing position (Figure 9). Next raise the axe to the position indicated (Figure 10).

Aim the blow, and bring the axe down with a natural, swinging motion, sliding the right hand down the handle as the axe descends, so that both hands are together at the end of the



Figure 9

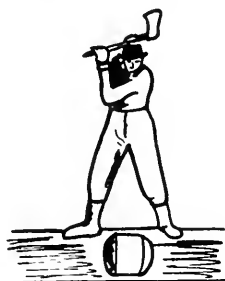


Figure 10

stroke. The first stroke should strike the top side of the notch with a portion of the blade protruding above the cut (Figure 11). This tends to keep the blade from sticking. Never raise the axe straight in front of the body. Swing the axe with a natural circular motion along and to the rear of the right side. The second stroke should strike near the bottom side with a portion of the blade protruding below the cut (Figure 12). The third stroke should hit in the center of the log (Figure 13). Twist the blade slightly as it hits so that the chip will loosen.

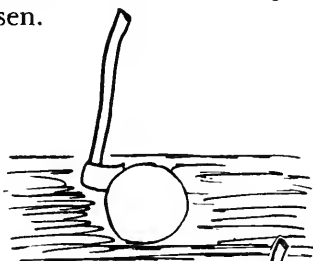


Figure 11



Figure 12

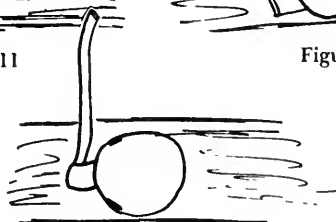


Figure 13



*The Backhand Stroke.* The next strokes are made on the left-hand side of the notch. Swing the axe over the right shoulder as before, but lean the whole body to the left and deliver the series of strokes as before—top cut first, bottom cut second, middle cut last.

Proceed from forehand stroke to backhand stroke until you are halfway through the log. Turn around and chop from the opposite side of the log until the two cuts meet. Always follow the series of strokes—top, bottom, and middle.

*The Side Arm Stroke.* This stroke is used in cutting down a live tree and is described under the next heading. The axe blows are similar to those used in chopping the log.

## **Felling a Tree**

Practically every tree has a natural lean and will fall in this direction, unless otherwise planned by the chopper. The lean of a tree can be determined by standing a few feet away and using the axe as a plumb line. Hold the axe by the end of the handle with the head down (Figure 14). With the blade pointed directly at the tree, the handle becomes a straight edge along which to sight and thus determine which way the tree leans. It is much easier to drop a tree in the direction of the lean. Remember that the wind will exert a great pressure on the direction of the fall. Select a clear area where the tree is to be felled, for this will make it easier to trim and cut up the fallen tree.

Make a box cut (Figure 15) in the direction that the tree is to fall. The width of the box notch should be half the diameter of the tree. The depth of the notch should be halfway through the tree with the bottom cut level, and the top at a slope of forty-five degrees. Next, cut a back notch on the opposite side of the tree and just slightly higher. When this notch is almost completed the tree will fall. If the tree has a heavy lean the front notch should go more than halfway. This will tend to prevent the tree from ripping when the back notch is cut.

The sidearm stroke is used for felling a tree. The axe is swung as described in the forehand stroke, except that the blow is delivered to the side of a standing tree instead of a log on the ground. The blows are placed in a similar series, first to the near edge of the cut with the heel of the axe left clear; the second blow to the far edge of the cut with the top edge of the

blade left out; the third blow will be in the middle with a slight twist to throw out the chip. The bottom of the cut should be kept level.

A tree can be felled against the lean if it is not too large. Select a day when the wind blows in the direction the tree is to be felled. Cut the front notch only one-third of the way through the tree. Next, wedge the tree (Figure 16). This is called a soldier and is placed in the back notch to force the tree over in the opposite direction. A pushing pole about twelve feet long can be used at this point to much advantage. Next, finish the front notch until the tree begins to move.



Figure 14

### Some Precautions

Always clear all vines, branches, saplings, and other growth within horizontal or vertical swinging area of axe when cutting a log or tree.

Stand to one side of a tree when it begins to fall. Never run from or stand behind a falling tree. Remember, a good woodsman always calls in a loud voice, "Timber!" just before a tree is about to crash.

Be on guard against "sailors" or "widowmakers" which are names given to limbs broken from a falling tree and left hanging in a live tree and which may drop at any time without warning.

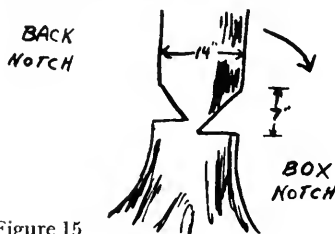


Figure 15

Trim branches from the butt end of a fallen tree working toward the top, trimming the underside of the limbs rather than in the crotch. As a further safety measure, trim branches on the opposite side of the tree trunk from which you stand.

Remember that the sharp, well-kept axe is a safe tool in the hands of a careful woodsman.

## The Knife

In all the campcraft program, whether it be trail or canoe trips, living at the outpost, or activity at the main campsite, two tools are a "must"—the axe and the knife! As in the case of the axe, a camper needs to learn the Why, How, and When

in the use of a knife before he is permitted to carry a personal knife about camp.



Figure 16

The Indian had, as his personal equipment for daily living, his bow and arrow, tomahawk, and sheath knife. The American pioneer had his rifle, axe, and sheath knife. There are some who feel that an ordinary pocket-

knife answers all needs. However, there are three main types of knives that should be considered for use in any campcraft program. These are the pocketknife, sheath knife, and the Indian crooked knife.

### Types of Knives

*The Pocketknife.* A pocketknife with a heavy blade of good quality and two thin blades is to be preferred over the combination pocketknife. Do not sacrifice quality for quantity.

*The Sheath Knife.*<sup>2</sup> This knife may be made or purchased. No one in camp should be permitted to have this knife unless he also has a sheath for it. The knife should always be in a sheath when not in use. The blade should not be over five inches in length and should be thin and sharp enough to slice bacon and cut bread.

---

<sup>2</sup> The Marble Arms Company of Gladstone, Michigan, manufactures a knife and sheath called the "Expert" which is highly recommended.

*The Crooked Knife.*<sup>3</sup> This is one of the most useful and all-round purpose knives ever made. It is what the name implies—crooked. Long before the white man came to this continent, the crooked knife was made from bone or copper by the Eskimos and Indians. Indians have long used files to make this knife. Steel from an old saw blade is also used. The blade is one-half inch wide and five inches long. The bottom side is entirely flat with only the reverse side being sharpened. The knife is made in two ways—for a left-handed or for a right-handed person. The blade is bent sharply upward one inch from the tip. Real skill is required in using this knife. One grips the ordinary knife with knuckles up, palm down, and whittles away from the body. The crooked knife is gripped with knuckles down, palm up, and the knife is pulled toward the body. The crooked knife is well adapted for making handles for tools, canoe paddles, and parts—for drawshave and gouging purposes. An excellent description for making this knife and the sheath knife is given in Bernard S. Mason's *Woodcraft*.<sup>4</sup>

### Care of the Knife

The throwing of knives in camp should be discouraged. It is a dangerous activity. Knives were not made for such a purpose. A knife should always be kept free from rust and in a sharp condition. If a knife is not to be used often, it should be wiped with a cloth that has been dipped in light oil. For a dull knife, first grind to a thin edge on a grindstone and then complete the sharpening on a small whetstone, using first the coarse side and then the fine side. A little honing at frequent intervals will keep a knife in excellent condition.

Thus far, we have dealt with the axe and knife, which are necessary tools for most campcraft activities. There are other tools that it is well for the camper to learn to use—tools that will be found useful at the outpost camp and for many of the construction projects about the main camp. Some of them are described in the following sections.<sup>5</sup>

---

<sup>3</sup> The crooked knife is made by the Hudson Bay House, Winnipeg, Canada.

<sup>4</sup> New York: A. S. Barnes.

<sup>5</sup> A well-known manufacturer of saws is the firm: Henry Disston & Sons, Inc., Philadelphia 35, Pa. Two other firms manufacture tools used

## The Saw

The saw is one of man's most ancient tools and antedates history by many thousands of years. Remains have been traced back to the age of the hairy mammoth and saber-toothed tiger. It is believed that the first saws were discovered rather than invented. When ancient man wished to cut a bone or a piece of wood, he used a sharp-edged stone. By drawing it back and forth across the object to be severed, he discovered its cutting action was due to this roughness. Eventually, he looked for a more suitable stone, clipped the edges, made the teeth more uniform—and the first fabricated saw was born. Many of these crude saws have been found in England and on the European continent. They have also been found in Asia, Australia, and in the Americas. All bear a close resemblance to each other, differing only in minor details. Some of these ancient saws have been found in New Mexico, and before Columbus discovered America, the Caribs used saws made of notched shells.

The oldest saw of the historical era was found in Ur of the Chaldees in Mesopotamia. The blades were made of volcanic glass by the Sumerians of Babylonia. The first metal saw was made in the Bronze Age by the Greeks, who got the idea from the jawbone of a fish. The most interesting of the ancient saws was probably the circular wood saw. The first circular wood saw was made in England in 1777, and the first 18-inch circular metal-cutting saw was produced in America by Disston in 1889.

The woodsman looks upon the saw as the companion tool of the axe. With modern equipment, the saw is used to a much greater extent than the axe in cutting timber. The following types of saws are suggested for the campcraft activities: the twenty-inch bucksaw for sawing small branches, poles, and stovewood; the six-foot two-man crosscut saw, and the three and one-half foot one-man crosscut saw. These saws are used for felling trees and cutting logs, and for certain construction.

---

by many camps in their woodcraft activities: Fayette R. Plumb, Inc., 4837 James Street, Philadelphia 37, Pa.; and Snow and Nealley Company, 48 Exchange Street, Bangor, Maine, which specializes in lumbering tools. An unbreakable one-piece claw hammer and a similar carpenter hatchet—each having a durable sole leather grip, are made by the Estwing Manufacturing Company, Rockford, Ill.

Another saw of the one-man type is the bushman's saw, which is a product of Sweden. It is a light, fast-cutting saw having a thin blade and tiny teeth and is easily sharpened. The thirty-six inch length is recommended. For general carpenter work, the twenty-six-inch crosscut and the twenty-six-inch rip saws are most suitable. The Disston No. 32 pruning saw is recommended for trimming branches on trees and sawing small limbs for construction purposes. Too few of our older campers are familiar with the use and care of saws for outdoor work.

Sawing with either the handsaw or the two-man crosscut requires skill which can be gained only by hours of practice. Much of the sawing with the handsaw is done with the forward stroke, while the two-man crosscut sawing must be done with a pulling effort. Frequent application of kerosene makes the sawing easier. Excellent suggestions for using the saw and its care are found in Bernard S. Mason's *Book for Junior Woodsmen*<sup>6</sup> and the *Manual on Saw and File*.<sup>7</sup>

### Timber Carriers

Every camp interested in woodcraft and outdoor construction activities should have at least six of these tools. This tool is indispensable in removing dead trees and logs which are a fire hazard in a woods. With this tool, it is surprising how easily large logs can be carried and heavy timbers moved about in construction work. Logs up to two feet in diameter can be moved safely and quickly with the timber carrier (Figure 17).

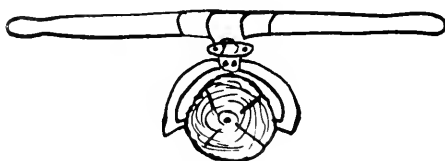


Figure 17

---

<sup>6</sup> New York: A. S. Barnes.

<sup>7</sup> Henry Disston & Sons, Inc., Philadelphia 35, Pa.

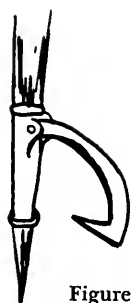


Figure 18

## Log Peavey

This is a "must" tool for the lumberjack, especially when logs are to be moved about in the water. It is a most useful tool in a camp where there is a woods and where logs have to be moved about for various purposes. The four-foot length with duckbill hook is recommended (Figure 18).

## Pulp Hook

This small handy tool is a part of every lumberjack's equipment. It is a handy tool for working around small logs. Logs can be picked up and swung around with little difficulty by using the pulp hook (Figure 19).



Figure 19

## Peeling Spud and Draw Shave

These two tools are helpful for removing bark and fitting a log for construction purposes and for fashioning small limbs for miscellaneous use.

## Mattock and Pick

These two tools are necessary for trail building and trench digging, removal of roots, large stones, and other obstacles.

## Shovels, Posthole Digger, Crowbar

Two types of shovels are recommended—a long-handled, round-pointed shovel and a short-handled, square-pointed spade. Their many uses are obvious to any camper. Not always found in a camp, but nonetheless a most valuable tool, is the posthole digger. Rustic bridge construction, guard rails, lean-tos, service poles, and other work about camp often require deeper holes than can be made with a shovel. The operation of a posthole digger is not so simple as it appears. Fingers can be injured easily and the handle cracked by the inexperienced user; therefore, only older campers who have had instruction should use this tool. A crowbar is a "must" for use with the posthole

digger. The crowbar loosens dirt and stones deep in the hole. Other uses about camp can also be found for this tool.

### **The Care of Tools**

All tools for use in the ground should be carefully stored when they are not in use, after removing with a small sandstone all dirt. As with other tools, edges will have to be sharpened from time to time. A coarse-grained file and a carborundum stone are recommended.

Saws should be kept in a moisture-proof cabinet, suspended so that the edge will not rub against another tool. Moisture against a steel face, unless that face is well protected, means immediate rust. In order to keep a saw blade in the best working condition, it must be entirely smooth, on both sides. Rust means pitting, which causes a rough surface. Immediately after use a saw should always be rubbed with a cloth that has been dipped in a light oil. Saws should be placed with the cutting edge away from the person using them.

A good tool deserves good treatment, and the more care given it, the better service it will give. Quality of work is determined not only by skill, but also by the condition of the tools which are used. An ordinary woodsman with good, well-cared-for tools can often do a better job than one who has greater skill but who is handicapped by poor tools.



## 9

### CLOTHING, PACKS, AND TRAIL BEDS

#### What Trail Campers Wear

Woods and streams—and the whole out-of-doors—make necessary the camper's protection against rough undergrowth, insulation against both the heat of the day and the chill of the evening, something waterproof and windproof; in short, clothing that will give the maximum of protection under a variety of weather conditions. Combine these requirements with the necessity for "going light," with limitations on both weight and space, and you have your problem cut out for you.

Let's consider some of the angles of this clothing problem, item by item.

*Shirts.* Woolen shirts are best for all-round camp use. Except when the weather is unusually hot, light-weight woolen shirts are comfortable, for they protect the body from temperature change and absorb perspiration. In open country and in hot weather, cotton T shirts are quite usable, but they give little protection in rough country and in cool weather. Cotton shirts are not especially desirable, for they become wet with perspiration, then cold and clammy, chilling the wearer.

*Shorts and Trousers.* Shorts are good for cabin area and open country use, but they give little protection in brush and forest country or in bad weather. Long trousers protect tender skin from briars, nettles, wet weather, yellow jackets and poison ivy, and are best for general hiking and trip purposes. Cotton trousers of duck or twill and dungarees or levis are commonly used in warm weather. In cold weather woolen pants are better, because they hold body heat and feel warmer than other types when damp or wet.

*Socks and Stockings.* Cotton socks will absorb very little perspiration and tend to "wad up" and "crease." Though they are usable around camp, they are not desirable on trips. Woolen socks feel more comfortable, decrease the chances of

blisters, and have a "cushion" effect. "Cushion sole" woolen socks, a development in World War II, are easy on the feet. A happy combination for people whose feet perspire excessively, or who cannot stand wool next to their skin, is a cotton, lisle, or silk inner sock worn under a heavy sock. For those who use rubber-soled footwear in winter a felt or sheepskin-lined innersole is advisable.

*Underwear.* Cotton jerseys and undershorts are suitable for warm and moderate weather wear. In cold weather, with the wearer active, the "long john" type in a light weight is good. Wool, or mostly wool, underwear will absorb moisture and continue to feel warm, but cotton remains damp and cold to the touch, causing body chilling.

*Jackets, Coats, and Sweaters.* The short, elastic or straight-bottomed jacket of poplin or gabardine cloth is a favorite since it is "water repellent" (sheds some rain), serves well as a wind-breaker and protects the wearer in rough country. Remember that these jackets require a new water-repellent treatment after being dry-cleaned. The heavier army-type "bomber" jackets, with quilted linings are good in cold and rainy weather. Rubberized jackets are waterproof, but will not "breathe," and so body moisture accumulates in clothing without evaporating—a disadvantage. Sweaters give added warmth, particularly under a jacket, but are of little use as an outside garment, for the wind steals body heat.

*Rainy Weather Gear.* Water-repellent clothing is of little use except in a light shower. Rubberized or plastic raincoats are best to keep one dry. A raincoat with a double overlapping front and a close-fitting collar is most effective. A poncho will double satisfactorily as a raincoat and a ground cloth. A divided pants and jacket, in rubberized or plastic material, is particularly good on canoe trips. A rain hat or a general-purpose felt hat will prevent that disagreeable feeling of rain running down one's neck. Keep dry, and you stay healthy.

*Footwear.* Tennis or rubber-soled tennis shoes are suitable for general resident camp use and around a base camp on a canoe trip, but are not a universal shoe for the out-of-doors. Oxford-style tennis shoes, lacking ankle support, are the poorest type. Thin-soled rubber shoes cause sore feet. Basketball type

shoes with thick soles are best, with built-in or built-up arch supports. Canvas tops are poor protection in wet and rough country.

Leather hiking shoes are good all-round camp shoes. Leather tops give ankle support and protection, but leather soles become slippery. Rubber composition soles, particularly those molded with cord, are better. Hobnails make leather soles usable in almost any terrain but they are bad for a canoe or a polished floor. A short-topped leather boot or "pac," that permits tucking into it the trouser bottom, is commonly used in the north country. Use chrome leather shoe laces rather than rawhide laces because they remain soft after being wet. Boots are good protection in snake country. New boots or shoes should be "broken in" before long hikes or trips. Indian moccasins or oxfords are not advisable for hiking. Moccasins give little foot protection, are hard on the arches, and wear out quickly unless soled.

Just a few notes on purchase and care of footgear: When you are buying shoes, take along the combination of socks (usually a light undersock and a heavier woolen sock) that will be regularly worn, to ensure your getting a large enough size of shoe. Try on both shoes, not just one. The size will probably be larger than that of your regular dress shoe. Allow enough room for comfort and freedom of toes. Shoes that are too large chafe and cause blisters; tight shoes cramp feet, pinch toes, hinder circulation, and cause blisters. Reasonable care of shoes means better shoe service. Wet shoes should be dried slowly near gentle heat, not close to a hot fire. Stuff shoes with newspaper, which will draw moisture from the leather. When dry, clean them with saddle soap and treat with a good leather lubricant. The use of any brand of "dubbing" (a mixture of oil and tallow for dressing leather) will increase waterproof qualities.

Here is a trip list that was used for a ten-day to two-week canoe trip into Canadian territory:

Socks (5 pairs; 3 pairs of which must be wool)

Shoes (1 pair sneakers and 1 pair ankle-height hiking or work shoes, or shoe-pac type with 8-inch tops)

Short pants (2 pairs, including swim trunks—one should be wool)

Long pants (1 pair jeans and 1 pair woolen pants)

T shirts (2 of them)

Cotton shirt (light-weight long-sleeve shirt)

Underclothes (3 pairs)

Heavy pajamas (1 pair outing flannel or sweat suit)

Heavy-weight woolen shirt or sweater

Windbreaker jacket

Hat with brim

Raincoat (waterproof—rain suit is best. Rubberized type better than plastic)

Poncho (in addition to raincoat—needed for covering supplies)

*Warning:* You'll regret every ounce of extra clothing on long hikes or long canoe trip portages, so go light. The idea is to take along only enough for a change in case one gets wet and sufficient cold and rainy weather gear to keep comfortable should the weather turn bad. Wash out your own socks and underwear en route.

Now one last suggestion. If trips out of the regular summer resident camp are customary, be sure that equipment lists, usually sent to campers and their parents before camping season, contain definite information on proper clothing for such trips.

## **All About Packs**

*Guiding Principles in Use of Packs.* There is a wide variety of packs for a variety of uses, and campers have different preferences. Here, however, are some principles that apply to all packs:

1. The trail-wise camper has all his duffel on the inside of his pack. Things do not hang or stick out to catch on branches or get in the way. His pack is large enough to hold all essentials.
2. The pack is waterproof and sturdy.
3. The pack balances well on the back. Everything is put into it, and the pack adjusted, before leaving base camp. Where to let it ride is a matter of personal taste. Many prefer to have it ride as high on the back and shoulders as pos-

sible; others prefer to have the bottom just rest high on the hips. The size of the pack may have something to do with this.

4. The straps are wide enough so that they ride comfortably over the shoulders. The webbing should be two inches wide and should not wrinkle.

5. The pack should be loaded with essentials only! If equipment is carried all the way, each ounce will seem like a pound by the end of the day. A good practice for beginners is to select everything that is needed—or that seems necessary—and leave half of that behind; then, probably, there will still be too much!

6. Inside the pack, articles are arranged orderly and according to type and need. The best method is to have smaller bags within the pack. These bags are frequently referred to as ditty bags and are made of various sizes and of practically any material; they are generally closed with a drawstring. The softest items, like the blankets, are placed next to the back so that sharp objects will not dig into it.

*What to Pack.* What to pack depends on several factors: the number going and sharing the group equipment, length of stay, type of locomotion, type of country, and weather. The size and strength of the camper, of course, makes some difference in how much is taken; the young boy cannot carry a man's load, which should not exceed fifty pounds. The following is a general list of items that can go into a large pack:

Poncho, flashlight, and first aid kit—on top

Sleeping bag or blankets—along entire back of pack

Muslin mattress tick or air mattress

Light-weight tent or tarpaulin

In one cloth bag: cooking and eating utensils

In food bags: well-protected food, much of which is in smaller plastic bags

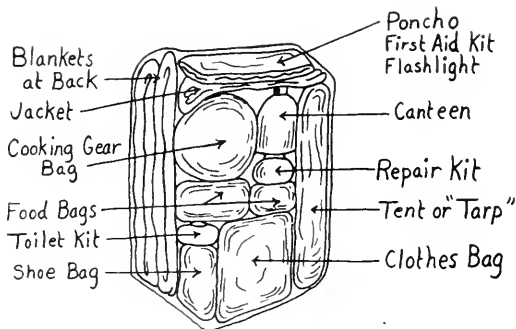
In one ditty bag: toilet articles and towel

In another ditty bag: repair equipment, insect repellent, sewing kit, shoestrings, extra waterproof matches, roll-up tobacco pouch containing fish hooks, and so on

Shoebag—with moccasins or light-weight shoes

Clothes bag with all extra clean clothes

Jacket or sweater—kept separate near top



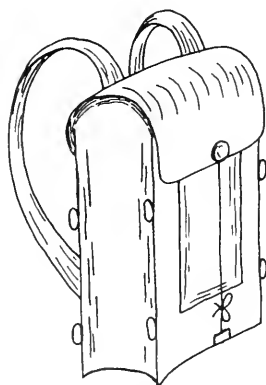
Here is one method of arranging a large pack like the Duluth. In actual tripping it is better to have two boys share the same pack by putting their sleeping gear and personal items into it. All food and cooking

gear should go into the other.

Some of the common packs

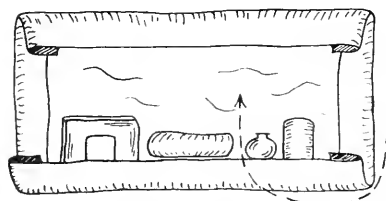
### 1. Knapsack and Haversack

These are good packs for younger campers who are not going on an extensive trip. The scout haversack is quite similar to other knapsacks except that it has rings along the sides to which is tied the camper's blanket roll; this fits around the pack like a horseshoe. With other necessary duffel inside these packs, there is no room for a blanket.



Haversack

### 2. Blanket Roll

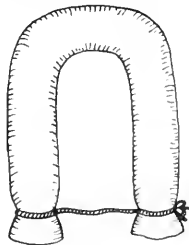


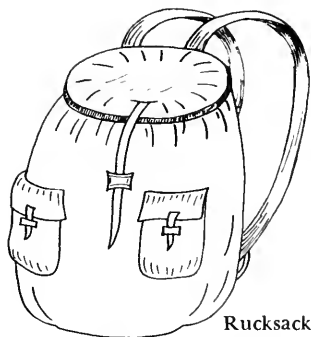
Blanket Roll

This type of pack is for those who do not have access to another kind, for it is the least comfortable of all packs. The blanket roll is looped over one shoulder and across the body; or it is tied around the haversack, but this requires a full pack to hold it properly. The roll itself is hot and awkward, weighing down one side and catching on obstacles.

### 3. Rucksack

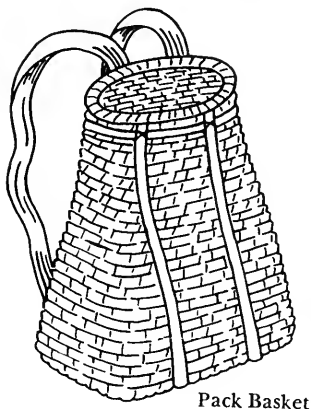
This type of small pack was developed in Europe and was a favorite of skiers. Rucksacks are now made in all sizes, and





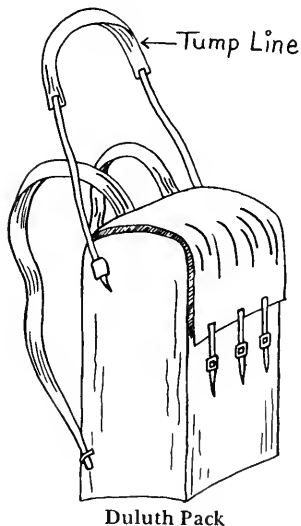
the larger ones are built with a light metal frame which holds the pack away from the back, thus keeping the camper's back from getting soaked with perspiration. The rucksack does not stow well in a canoe, but among hikers it is popular.

#### 4. Pack Basket



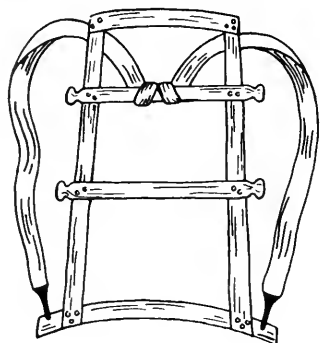
Because of its original popularity in the Adirondacks and New England this pack frequently bears the name "Adirondack" pack basket. It is particularly good for short hikes with canned goods, bottles, other hard objects, and items that are not to be crushed. It is used by many hikers and canoeists who like a pack that has support and keeps its shape. However, it is somewhat uncomfortable against one's back, is heavier than other packs, and needs a waterproof lining or covering.

#### 5. Duluth Pack



This large pack is a favorite with long trippers—especially canoeists. It will carry blankets or sleeping bag on the inside and it rides well on shoulders and back. It generally comes equipped with a "tump" line which is a leather or canvas headband to be used as an additional support for short hauls of exceptional weight or to be used alone when there is treacherous footing; for by throwing the head back the load can be quickly lowered to the ground. The tump line is also on some pack frames, but the average camper has no need for a tump line.

One of the disadvantages of this pack to canoeists when they are carrying heavy food supplies is overcome by using a pack basket, or discarded cardboard box inside the pack. The contents are given a rigidity that adds support and makes the load more comfortable to carry. The cardboard boxes are preferred by many, because they believe a better job of packing can be done and because the boxes can be burned as they are no longer needed and the portaging becomes increasingly lighter.



Pack Frame

#### 6. Pack Frame

There are many designs of pack frames or pack boards. They are all comfortable and are cool because they stand away from the back. They are made to carry heavy loads, oddly shaped objects, and boxes that can't be put into a pack. Using a pack frame means, to the average camper, packing everything into a duffel bag or ground cloth and then tying that to the frame. There are

disadvantages in not being able to get items when needed, in not knowing how, sometimes, to tie the load properly on the frame, and in not having a place to keep duffel while at the campsite.



Duffel Bag

#### 7. Duffel Bag

There are several types of duffel bags, but the most popular one is the bag that zips its entire length. The

one that has its opening on the end is not practical, for what is needed will surely be at the bottom. The duffel bag's best use is in caravan or travel camps where it is not necessary to carry equipment on the back.

### How to Make a Good Trail Bed

Camping is not "roughing it." Camping is supposed to be fun. One of the most important factors in insuring fun and safeguarding health is a good night's sleep. The key word to good sleeping is "comfort." And he who thinks it is "sissy" to prepare for comfort, is a novice. A good woodsman does every-



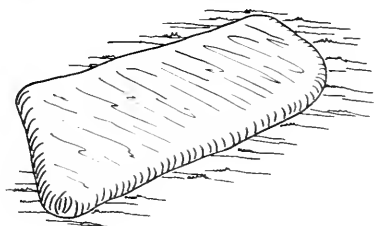
thing to insure restful sleep. He does not just throw his blankets down anywhere to sleep on the bare ground.

The following are some *types of ground beds*:

1. The simplest bed is made by first selecting as level a spot as possible and clearing it of all sticks and stones. A pebble the size of a marble may feel like a large rock before morning. The head should be as high as or higher than the feet. The ground should then be made to yield a little to the natural depressions of the body when asleep. Hip and shoulder hollows should be dug or scraped out. By lying down in position several times during the digging process the camper can tell exactly what shape and how smooth the ground needs to be made. While making these hollows the ground could be "softened" by turning it over with the trench shovel.

A ground cloth is then placed on the ground. This can be a poncho, small tarpaulin, or other waterproof fabric. This is very important to keep the dampness and cold from "catching up" with you. On top of the ground cloth the bed roll can then be spread.

2. For more comfort after the ground has been properly prepared, the following are suggestions:



Tarp or Poncho over Pile of Leaves

a. A layer of dry grass, straw, leaves, ferns, pine "browse," or similar material if available, will help to soften the bed as well as to give additional insulation.

b. A higher mound of fluffed-up grass, leaves, and the like can be used to better

advantage if a tarpaulin or ground cloth is tucked in all around under the edges. A poncho can be snapped together and stuffed with grass and leaves.

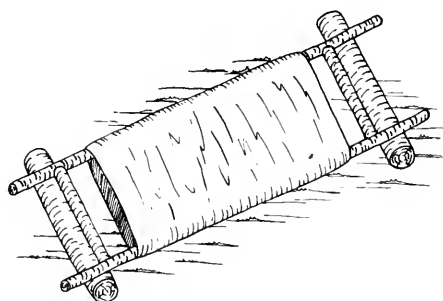
c. Many campers carry with them a tick or mattress cover made of muslin. This is stuffed full of whatever materials the region makes available, tied up, and used like a mattress. Unless the tick is waterproofed or a ground cloth is to be used on top the filling must be dry.

3. If time permits, or more than one night is spent at the same

spot, the following are among the types of beds that may be made:

a. Side and end logs are cut and held in place by stakes driven into the ground. This frame is filled high with leaves, grass, or browse. To be sure to get enough, such filling should be matted down and the frame packed with more leaves.

b. A canvas bunk can be made by carrying along a double thickness of canvas with the long edges sewed together. The width should be three feet and the length about six feet, depending upon the height of the camper. Two side poles are cut to run through the canvas and to rest on six-inch-thick end logs. Heavy cross sticks are wedged (forced) between the ends of the poles to keep them spread apart. Although



Canvas Bunk

not quite so sturdy, heavy muslin or a mattress cover can be used the same way and has the double advantage of being lighter to carry and "giving" more to the body shape. The mattress cover (with one end

open—and holes just large enough for the poles at the other end) can also be stuffed and used as a bed tick as described above when time does not permit the making of a "bunk." For more insulation when the bunk frame is used the canvas or mattress cover can still be stuffed.

c. Bough beds—although fragrant, woodsy, and comfortable if made properly—require a great deal of effort and are limited to wilderness areas where proper trees are available.

A frame of logs should be made to hold the boughs in place. Fir (particularly balsam) and hemlock are very good. Coarse boughs (which may also be spruce) should be placed on the ground, convex side up, butts toward the foot, to form the first layer. The finer fir or hemlock boughs are laid down carefully in shingle fashion with the butt ends stuck into the lower boughs and ground and the tips always pointing toward the head. Begin at the head working down—one

layer over the butts of the previous layer and giving particular attention to the area of the hips. The lower third of the bed can be done more quickly because the feet don't need the same support.

d. The willow bed is a favorite with those who know how to make it. Over a frame of heavy poles or logs thick willow sticks are placed close together and tied in place with heavy twine or vines. Over this is placed a tick full of leaves or balsam, and hemlock boughs may be stuck through the willow sticks to form the mattress.

4. The air mattress is the modern touch to the woodsman's comfort and is accepted as an excellent answer to this need if carrying weight is not too important and if the camper has the money to invest in one. The air mattress saves considerable work and sometimes anxiety. The mattress can easily be blown up by lying down on top of it and inflating it with your own lungs to the point where your lowest portions do not quite touch the ground through the two layers of rubber. Little concern needs to be given in case of rain running on the "floor," and in the morning the air mattress is merely deflated and folded or rolled up for the next night.

*Bed Rolls.* Sleeping bags or blankets make up the bed rolls to be used as part of any of the previously mentioned ground beds.

1. Sleeping bags for a time were controversial pieces of equipment because some of them were not readily adaptable to sharp contrasts in temperature, gave the feeling to some users of being "cooped up," were a little hard to air out and keep clean, and were more expensive than blankets. Now, however, the better bags have generally been accepted as being superior to blankets. Their chief virtues are that they weigh less for the same degree of warmth and are less bulky.

The materials that are used for filling sleeping bags are kapok, wool, feathers, and down. The first two are the heaviest and least expensive. Wool is preferable to kapok; feathers and down are lighter and warmer than both, but also more expensive. Down from ducks and geese is the best-known insulation against cold and moisture offered by nature. For campers who do much hiking or portaging, the all-down filled bag is ideal.

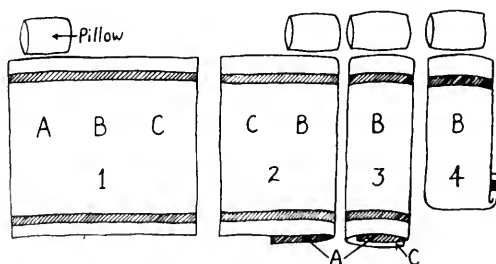
For summer camping it is well to have a sleeping bag that

zips its entire length. This allows for more ventilation if needed when sleeping and it is easier to sun and air. The "mummy"-shaped bag is too hot and confining for ordinary summer use, but good for high altitude camping. It is well to have a bag that is not too heavy or is not meant for very cold temperatures; then, if occasion calls, an extra blanket or two may be carried to supplement it.

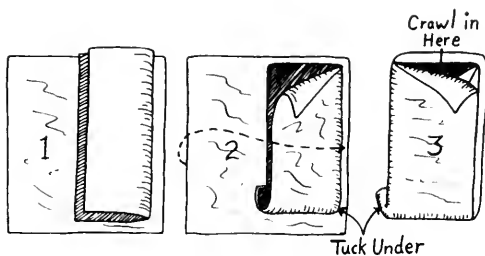
2. Blankets can be made into a very comfortable bed, but the novice who does not know how, frequently spends his first few nights of sleeping out in a rather miserable fashion—unnecessarily letting in a lot of cold air.

All-wool blankets are the only type to use. Cotton or part-cotton blankets will absorb moisture from the damp woods and hold that given off by the body; hence, they will be clammy and colder than wool. Dark or neutral-colored blankets are preferable to light and brightly colored ones. For warmth, loosely woven and fluffy blankets are preferable to the army type which is made for hard service. It is better to have two three-pound blankets than one six-pound one. The object is to get more insulating air space in the blankets. Remember, it is important to have as much under as over the body. The following blanket beds are made over a ground cloth which is spread on the prepared ground.

To make a one-blanket bed as in Illustration 11: Lie down on "A," bring "B" over body, sit up and push "C" under body; then tuck in at foot. The camper may roll with the blanket to get it as shown but it must not be rolled tight. The blanket may be made first as above; then the camper gets in over the double thickness.

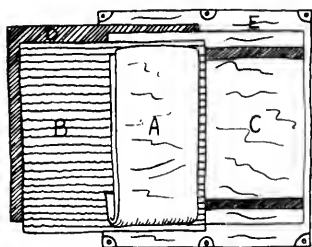


One Blanket Bed



Two Blanket Bed

The three-blanket bed is made like the two-blanket bed in Illustration 12. Both are frequently called envelope beds. For clarity, a three-blanket bed with sheet and poncho beds is shown in Illustration 13.

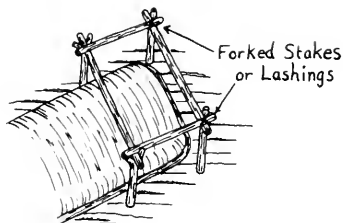
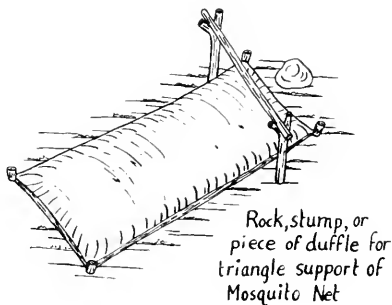


Three Blanket Bed

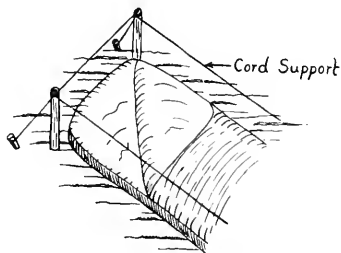
Fold sheet or light blanket (A)—to be slept next to—in half and place in middle. Then fold “B” over “A” and “C” over “B,” then “D” over “C.” Then tuck the bottom ends of the blankets under and cover all with poncho (E).

If one is in the habit of sleeping with a pillow a small feather or down pillow could be carried along, but one’s folded clothes put in a cloth bag will serve nicely. To complete the blanket bed when no tent is used the ground cloth should be wide enough to fold over the top of the blankets in case of rain or heavy dew. The ground cloth to be used this way should be as light as possible, for on warm nights the additional weight and heat together with the increased retention of body moisture may make the camper quite uncomfortable. In case of wind the corners of the ground cloth can be tied to stakes or the poncho can be snapped together.

*Mosquito Protection.* Although the bed is comfortable a camper may still have a miserable night if he does not have some means of combating mosquitoes and other insects that may attack him in the early morning. The best safeguard is a tent with an attached mosquito bar. If the tent lacks this a piece of mosquito netting can be pinned onto the front of the



tent if it is otherwise made free of entrance holes for the little pests. An insect "bomb" may be well worth its weight for such cases in bad mosquito country. Mosquito netting or cheese cloth in a canopy over the head will do the job if carefully placed. Insect repellent, of course, may be of some help for several hours.



Four Corner Frame Support

For warm nights when more ventilation may be desired, a mosquito net rigged over the entire bed is best. The simplest support is made by driving four stakes, one at each corner of your bed, and connecting the tops of the stakes with cord. In all cases

get a piece of netting that is large enough. Plenty of netting needs to spill over on the ground, and these edges must be weighted down carefully.

*What to Wear to Bed.* If wearing pajamas to bed seems out of place on the trail, think again, for wearing what has been worn all day will be uncomfortable before morning. The moisture retained in unchanged clothes or underwear will make a camper cold and often helps to bring on stiff joints and aching limbs. If a camper does not wish to carry pajamas he should change into a clean pair of underwear in warmer weather. In cold weather he should change into a track "sweat suit" with a hood and clean wool socks. A cotton or flannel shirt may be all that is necessary. When it is cold an old-fashioned wool ear-muffed cap, or a large bandana handkerchief, or a towel may be worn over the head.

In the morning, air out and thoroughly dry all bed clothes, blankets, or sleeping bag, and then wrap them up snugly to keep them dry and clean until time for them to be used again.

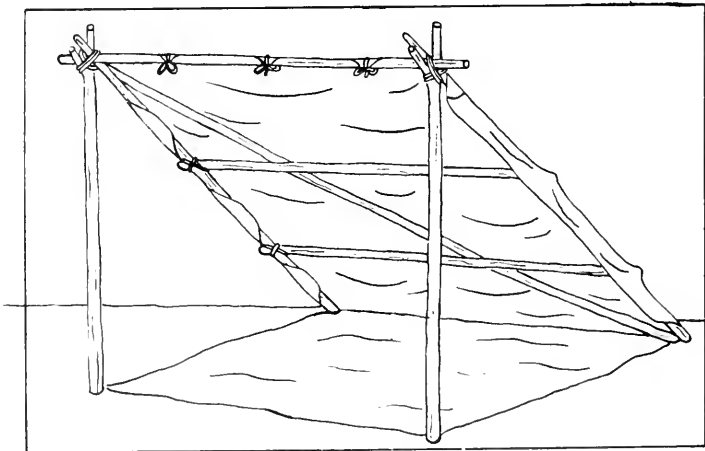
# 10

## SHELTERS

A shelter is something which provides protection from the natural elements—wind, heat, cold, insects, and the like. A good shelter is essential to health and comfort on the trail. Therefore, training in the effective use and construction of shelters is fundamental to good camping in wilderness areas. As a trail camping program develops and experience is acquired, more elaborate shelter will be devised from the creative thinking of the staff and campers. Experience is the best teacher on the trail.

### **A Temporary or a Permanent Shelter?**

The kind of shelters to be selected for use on the trail will, of course, depend upon the kind of trail experience planned. Temporary shelters are to be used when the group is constantly on the move. A permanent type of shelter, such as an Adirondack lean-to or a log cabin, can be constructed at base camps



Temporary Shelter





Permanent Shelter

situated at a reasonable day's journey between sites. Each type of shelter has its place in the trail camping program.

When selecting temporary shelters, the size of group to be accommodated and also the manner of transportation should be considered first. If shelters are to be packed by individuals, they should be light and easily stowed. If the mode of transportation is to be a canoe, horse, or motor vehicle, the kind of shelters selected for use can be larger and more sturdy. It is advisable, however, that the shelters be so designed as to accommodate from two to three persons. A sufficient number of these shelters should be taken on each trip to serve the whole group. Shelters of this size are more readily packed than larger, more cumbersome ones, and a greater number of persons can participate in their erection.

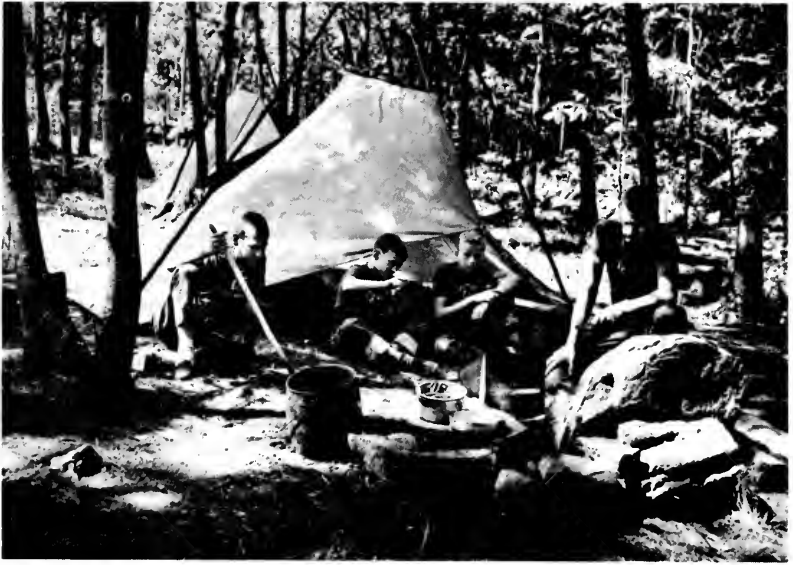
Permanent shelters established at base camps can provide interesting woodcraft experience for campers. A permanent shelter can be constructed out of natural materials such as bark, evergreen boughs, brush, and slab wood. In wilderness areas a permanent shelter has been found to be very practical. When base camp locations are equipped with them, the amount of duffel carried on trips can be limited.



Permanent Shelter

### **Types of Canvas Tents**

There are numerous types of canvas shelters that can be purchased from commercial establishments with long experience in providing camping equipment (see Appendix). The more common types of these shelters found practical for trail use are as follows: the shelter half, the Adirondack style tent, the Explorer, the "A" tent, and the canvas "tarp" that can be erected in various ways but usually set up in lean-to fashion. These canvas shelters, as previously suggested, should accommodate from two to three persons. In many state park areas it is necessary to pack tent poles with shelter equipment, for the cutting of saplings for framework is not permitted. This is an important consideration, and some method needs to be devised to telescope long poles or to pack shelters that will not need poles but that can be suspended between trees.

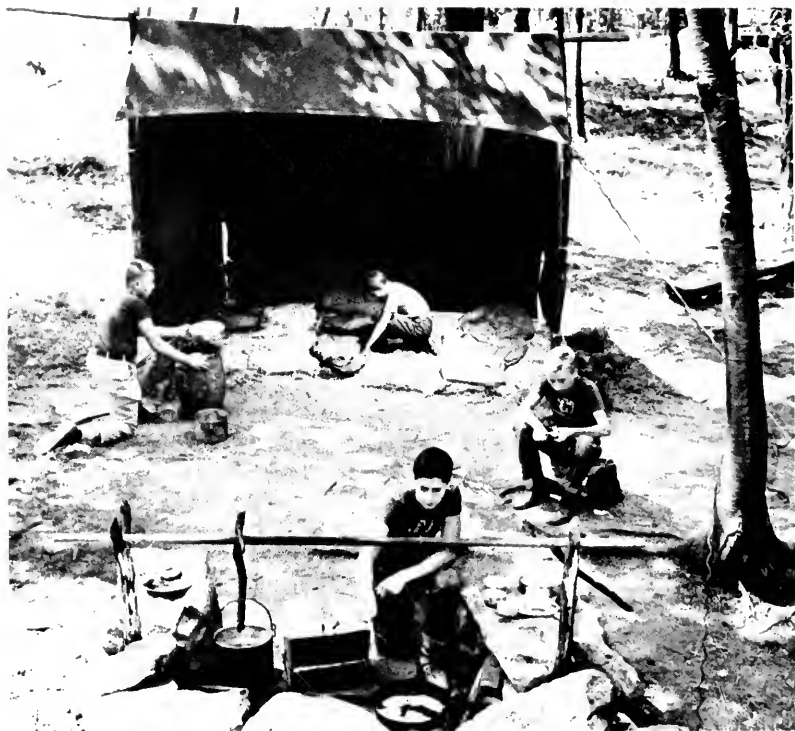


Explorer Type Shelter

### Selecting the Site for the Shelter

The time of day when the site should be chosen for overnight camping where shelters are to be erected is important. When the group is moving along the trail, serious thought should be given to the location of the overnight camp at about three o'clock in the afternoon. Some of the factors for consideration when the group is deciding upon this site are, in the order of their importance, as follows: drinking water, terrain—whether it be dry or swampy, level or rocky—insects, and exposure to prevailing storms.

Woods-wise skills in the erection of either a temporary or a permanent shelter are valuable. The terrain should be carefully studied and the shelter erected so that the back will protect its occupants from the prevailing wind and storms. If the group is to make use of natural materials for the shelters, the availability of these materials near at hand should also be a determining factor. The fireplace, an essential part of every shelter, should provide warmth for the shelter and at the same time be suitable for cooking and so located that the prevailing winds will not blow smoke into the shelter.



Adirondack Type Shelter

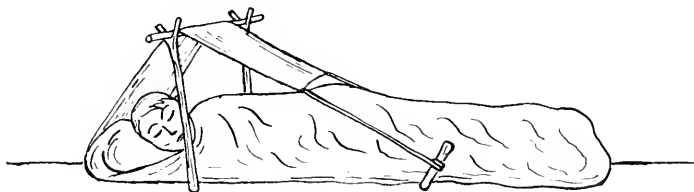


Lean-to Type Shelter

## Two "Musts" for Shelters

Each shelter should be provided with a *canvas ground cloth*, for it is important to protect the campers from the dampness underneath. Around each shelter should be dug a trench so that water running off the shelter will be directed away from the inside of the tent. Canvas shelters should not be stretched too tight when erected. The evening dews and rain may cause the canvas to shrink and result in the ripping or tearing out of the metal eyelets or grommets.

An essential part of each shelter is the *sleeping bag* or other type of weather protection of campers while sleeping in the shelter. Sleeping bags have been designed to provide a minimum of shelter and can be utilized in the open when the weather is good. If campers are permitted to sleep in their bags in the open during a clear night, the shelter should be erected nevertheless, so that in case of an unexpected storm the campers can quickly move under its protection. A practical sleeping bag can be made of a shelter-half of a rectangular piece of lightweight canvas. (See pages 88-90.) There are a number of good commercial sleeping bags on the market that can be purchased at reasonable cost. (See Appendix for list of dealers.) Every camper going on the trail should be fitted out with a sleeping bag. A good night's sleep is important.



Sleeping Bag

## The Care of Tents

Counselors as well as campers should be given adequate training in the care and handling of canvas shelters. Abuse of this equipment is costly and will contribute to the discomfort of a group on the trail. This kind of instruction can be given best back at the main camp in the trail camp staging area. A counselor especially skilled in trail experience should advise groups

going out as to the proper shelters to take along and the correct method for their effective use. This instruction should be of a practical nature, and adequate time provided for the practice of erection and packing. These are some suggestions on the care of tents:

—When the tent is pitched be sure the floor is flush on the ground to prevent ripping.

—If it rains during the night, loosen the tent ropes to prevent shrinking and subsequent ripping of the tent fabric.

—NEVER THROW TENTS.

—Avoid packing damp, wet tents whenever possible along the trail. If necessary, be sure to air and dry them at the earliest opportunity to avoid mildew.

—Tents are carried conveniently slung atop a pack on the shoulders, one hand holding the tie string.

—Avoid touching the inside roof of a tent in the rain, because water will leak through the fabric wherever touched.

—When leaving the campsite, the tent poles are leaned against a tree, and the stakes elevated to prevent rotting.

—Make all necessary repairs to tents as soon as holes are noticed, for holes become larger if neglected.

—An important factor that should not be overlooked by counselors and campers is the care of canvas shelters *at the end of a trip*. The equipment is not ready for storage until it has been thoroughly dried and cleaned. Canvas shelters properly cared for will last for at least ten years. The condition of all tents should be reported to the trail camping director at the end of the trip.

# 11

## TYPES OF FIRES AND FIRE BUILDING

### Safety Precautions

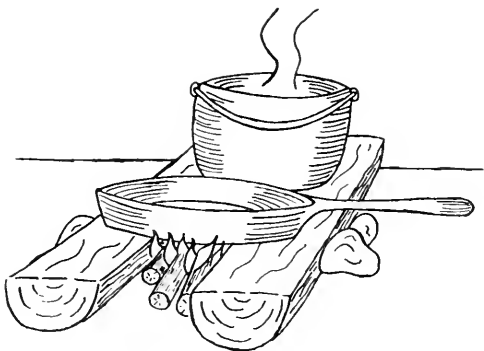
Before describing fires and fire-making methods, it may be well to sound a note of caution against fire carelessness. Every year vast areas of forests are destroyed because of carelessness on the part of campers. A fire built upon gravel or sand is always safe, when kept within bounds and completely extinguished before it is left. In abandoning a fire, or leaving it for even an hour, not one live coal should remain. Such a coal might be blown by the wind into combustible material and cause disaster. Fires should never be lighted upon peat soil. Peat will burn, and the fire will often creep under the surface to break out later, and perhaps several feet away, even though the original fire may have been extinguished. Should a match fall upon dry leaves or rubbish, a smoldering fire may be started to be fanned by the wind into flames hours later.

It should then be the rule of every camper never to leave unprotected a fire of even smoldering coals. If water is to be had the coals should receive a soaking, or otherwise they should be covered with sand or gravel. Scattering the fragments is not enough. It is the camper's duty to obey to the letter the laws of the state in which he camps. In general there are laws governing the lighting of fires in forest reserves. Some of the states require that a pit be dug in which the fire is to be made.

Campfires tell very quickly how much camp experience the builder has had. The experienced camper starts a fire as soon as the camp is located. The logs for a campfire may be arranged in many ways, and there are also many ways of supporting the pots and pans so that the food may cook slowly or rapidly.

### Types of Fires

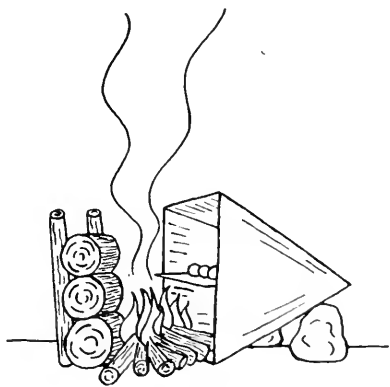
*The hunter-trapper fire* is the traditional arrangement in the American woods—two logs are placed side by side, a little fur-



Hunter-Trapper Fire

ther apart at the front end than at the back. The fire is built between them. The larger pots are then rested on the wide end and the smaller pots on the other. The logs should be six to eight inches thick and three feet or more long, and the wide end should be placed toward the wind. When starting the fire a damper stick may be placed under one of the logs at the wide end. Later this stick may be removed. Two rows of flat stones may be used instead of the two logs. A trench or ditch of the same size may be dug if there is a high wind. The trench fire also saves wood and holds the heat better.

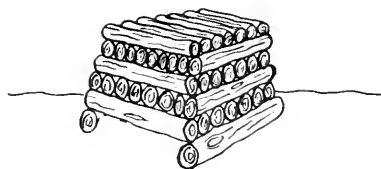
*The reflector fire* is needed for baking. Two upright poles are driven into the ground, and several logs are stacked against them to form a wall. The fire is then built against this wall, and the reflector oven is placed in front of it. A larger arrangement of this same fire is the best method of building a fire for warmth. The wall helps to throw the heat into the tent. If it is to be an all-night fire it is better



Reflector Fire

to drive two more upright poles in front of the logs to keep them from rolling. As the bottom logs burn away, the others drop down and the fire keeps going.





Crisscross Fire

start the fire. A second row is placed crosswise on top of this row, and the arrangement is continued until the pile is about eighteen inches high. In this kind of fire all sticks burn uniformly. When they burn down there is a glowing bed of coals.



Raised Fire or Cooking Altar

*The crisscross fire* is the best arrangement for cooking because it supplies an even bed of coals. It is made by laying a row of sticks beside each other on two fairly large logs, leaving space enough between the logs for small kindling to

*A raised fire or cooking altar* is a neat trick. This kind of fire requires far less bending. Several layers of logs are crisscrossed until the height desired is reached. Then a sheet of tin is put on the top and covered with earth. The fire is built on it. This fire must be hot and small. If thin hardwood is used it won't be necessary to wait for coals in order to cook; it is possible to cook in the clear flames.

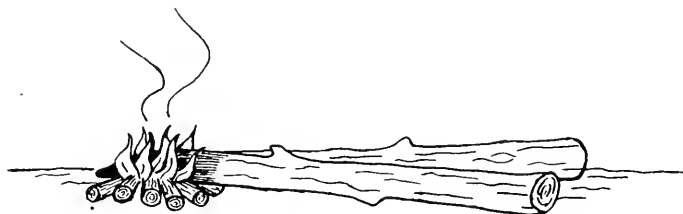
*The cooking trench* may be used when the ground is free from humus and other organic material through which the fire might creep. Dig a trench one foot wide, one foot deep, and about five feet long. Arrange it so that whatever wind there is will blow through the trench. Build the fire about two feet long down in the trench; then cook on green sticks which are placed across the top. Cooking can be regulated by moving the pots nearer or further away from the fire. The cooking crane, a simple device for holding one pot, is made by using a green sapling. This is called a dingle stick. Make a more elaborate

setup by driving two forked sticks into the ground, then laying a green stick across them. Both are suspended from this cooking crane by using holders made of wood or wire. These make it possible to move the pots to the position where they will receive the best cooking heat.



Cooking Trench

*The star or lazy man's fire* is a good stunt when you don't want to be bothered cutting up long poles for firewood. Build a small fire, then poke the ends of the poles into it radiating outward. As the ends are consumed keep pushing the wood into the fire.



Lazy Man's Fire

*The evening campfire* for the whole camp or for a unit or cabin group is utilized as an important program feature. Singing songs around the fire, individual strength contests, Indian dances, rituals and storytelling are all made memorable by the flickering flames, the shadows, and the ring of blanketed figures in the council circle.<sup>1</sup>

### If Rain Comes

Building a fire in the rain is difficult for even the most experienced camper. Sometimes there is dry wood to be found under logs and trees. A soft-wood log may be split open for dry shavings. The fire should be built on the lee side of a boulder or a log. The lee is the side protected from the wind. In winter, fires should not be built under snow covered trees. The heat will melt the snow, and the water may put out the fire.

---

<sup>1</sup> See *Campfire and Council Ring Programs* by Allan A. Macfarlan (New York: Association Press, 1951, \$2.50).

## Types of Material for Fire Building

Three types of material are needed in building a fire: tinder, kindling, and firewood. Birch bark is the best tinder. It burns furiously for a long time, even when wet. Tiny shavings may also be used. They should be whittled from a dry soft-wood stick. Very dry little twigs about the size of a straw are also satisfactory. Soft wood such as cedar or pine is best for kindling. But it gives a quick, hot fire which soon dies out and for this reason is not good as firewood for cooking. Hardwoods are usually needed for firewood. Most of them burn slowly and evenly and produce a bed of long-lasting coals. The six best firewoods are hickory, oak, beech, sugar maple, white ash, and white or yellow birch. The wood should be dry and seasoned for best results, but slow-burning green wood is preferred for back logs and side logs. Black ash, balsam, basswood, buckeye, butternut, chestnut, cypress, box elder, hemlock, sassafras, sycamore, tamarack, red oak, and red maple burn very slowly when they are green. Some of them scarcely burn at all. Almost all the soft woods crackle and shoot off embers and sparks, as some of the hardwoods do. Such fires must be watched for some time after they have been started. The camper should have plenty of firewood before starting the fire, in order not to have to leave the cooking, when the meal is half done, and to avoid having to get up before daybreak to gather more wood to keep the fire going.

## 12

### MEALS ON THE TRAIL

It has been said that an army travels on its stomach. That can be said, too, of a canoe trip or hike. Food is one of the major constituents of such a trip. The main responsibility of the selection and preparation of food for a trip into the woods falls upon the counselor.

#### **Preparing the Menu and the Food List**

The counselor should make up a tentative menu for a trip, using a list of foods available in the trail department. In planning this menu he should try to make it tasty and well balanced. A well-balanced menu will provide at least the minimum daily requirements of the essential proteins and vitamins. It is advisable that the counselor talk over this tentative menu with his group, giving them the chance to help plan the final menu. He will remember that it is their trip, not his. He must always keep in mind that all the food will have to be carried. He should make use of the lighter dehydrated foods as much as possible.

The counselor's next job consists of making the food list, or in other words, making a list of every different type of food he will need and in what amounts. (See Appendix for food list form.) He is then ready to "pack out" or draw the food for the trip. The trail director should always be on hand to supervise the packing-out operation and be ready to point out to the counselor the age of his group and the amount of food he thinks is needed. Too little food can make a trip miserable for the counselor.

It is important, therefore, that careful thought be given to the planning of meals, the quantity of food needed, and the methods of preparation. The meals should be simple but nourishing.

When planning just one meal the menu should include:

Fruit or vegetable, or both

Eggs, cheese, beans, meat or fish

Cereal or bread (whole grain, restored or enriched)

Milk, if possible

When planning meals for one day or more it is wise to provide each person with the following foods for each day of the trip:

At least a pint of milk

Fresh fruit, if possible, otherwise cooked fruit

Plenty of cereals and bread (whole grain, restored or enriched)

Two or more vegetables, one of which should be green, leafy or uncooked

One egg

Cheese, meat, fish, dried beans or peas

### **Packing the Food**

Packing the food into the packsacks is the next step for the counselor.

All equipment and food should be packed to avoid waste space and still keep the food in good condition. Eggs, wrapped individually in paper napkins and packed in a lightweight cardboard box, will stand considerable jolting. They can also be packed in flour or biscuit mix. Lettuce or other leafy vegetables may be washed in camp and carried in a tightly covered can or kettle. A little ice is a good addition for a one-day trip on a hot day. It is possible to get or make waterproof bags for salt and sugar, but jars or tin boxes with tight covers, holding just the amount needed for one meal, make excellent substitutes.

The counselor should keep in mind, when packing the food, the weight of the packs in relation to the size of the members of his group. He should pack the food in order, using the menu as reference, so that the food which is to be used later in the trip will be placed on the bottom. Foods such as trail lunch, salt, sugar and so forth, should be packed on or near the top for easy accessibility.

The tables that follow provide help in determining quantities of food for packing supplies:

### HANDY TABLE FOR PACKING FOOD SUPPLIES

Butter, 1 pint=	1 lb.
Coffee, ground, 1 pint=	$\frac{3}{8}$ lb.
Cornmeal, 1 pint=	$\frac{3}{8}$ lb.
Flour, 1 pint=	$\frac{1}{2}$ lb.
Oatmeal, 1 pint=	$\frac{1}{4}$ lb.
Onions, fresh, 1 pint=	$\frac{1}{2}$ lb.
Potatoes, fresh, 1 peck=	15 lbs.
Raisins, 1 pint=	$\frac{1}{4}$ lb.
Rice, 1 pint=	1 lb.
Sugar, 1 pint=	$\frac{3}{8}$ lb.
Tea, 1 pint=	$\frac{3}{4}$ lb.
Vegetables, canned, common size, 1 can=	2 $\frac{1}{4}$ lbs.

### FOOD USED BY SIX PERSONS ON A SIX-DAY TRIP

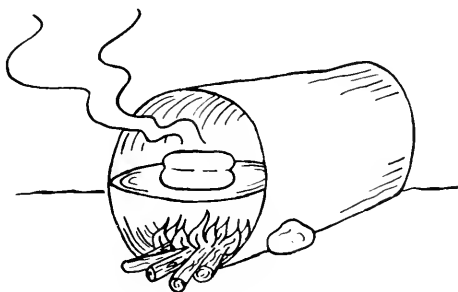
Dried potatoes .....	3 cans
Dried vegetables .....	3 cans
Dried soup .....	6 sticks
Klim .....	3 lbs.
Rye crisp .....	1 pkg. (1 $\frac{3}{8}$ lbs.)
Triscuit .....	4 pkg. (6 oz. ea.)
Flour .....	4 lbs.
Cornmeal .....	1 lb.
Pancake flour .....	1 lb.
Rice .....	1 lb.
Cereal to cook .....	2 lbs.
Butter (canned) .....	3 lbs.
Peanut and date butter .....	1 $\frac{1}{2}$ lbs.
Jam .....	2 jars (medium)
Prunes, dried .....	3 lbs.
Apricots, dried .....	3 lbs.
Raisins (seedless) .....	2 lbs.
Corned beef, dried beef, codfish, salmon, etc.....	6 cans
Bacon .....	2 lbs.
Cheese .....	1 lb.
Sugar .....	3 lbs.
Salt .....	$\frac{1}{2}$ lb.
Pepper .....	2 oz.
Baking powder .....	$\frac{1}{2}$ lb.
Coffee .....	1 $\frac{1}{2}$ lbs.
Cocoa .....	1 $\frac{1}{2}$ lbs.
Tea .....	$\frac{1}{4}$ lb.

## Checking the Food List on the Trail

The counselor on the trail should keep an eye on future meals. By consulting his menu he can keep in mind what food is to be prepared and the amount of time which must be allowed for its preparation. It is important, for the continuity of a meal, that the counselor organize the preparation of a meal so that each item will be ready to serve at approximately the same time.

The counselor should remember that the proper baked goods can lift a relatively ordinary meal up to something exceptional. It is up to the counselor to use his ingenuity in providing the variety of baked goods which will enhance each meal.

Fish, when caught, can provide the nucleus of a meal. The general practice, however, is to plan on having fish but do not count on it in the actual menu.



Tin Can Oven

## Cooking Fires

Cooking fires are built according to their use. They should never be bigger than needed to heat the pot or kettle. Large fires waste fuel, are hard to control, and are difficult to work over. The pan or kettle should be raised above the fire so that

there is a free circulation of air beneath. A thin coating of soap applied to the outside of the kettle before putting it over the flame will help in removing black soot when dishwashing time comes. Boiling and stewing may be done over a blazing fire, but when broiling or toasting (cooking directly over the heat), let the fire burn down to red coals. This takes time, but it is worth the trouble. Hard, closely knit wood makes better coals than wood that is light. A well-ordered woodpile is a help.

Cleaning up is an important part of trail living. Good hikers burn all bits of refuse and paper. Cans are flattened and buried. The fire should be absolutely out. To be sure it is, wet it

thoroughly, or cover it with dirt. Campers should not build fires unless they can put them out!

### **Meat Cookery**

Remember that meat needs careful cooking, so don't be in too much of a hurry. Don't cook it too near the coals or you'll burn it.

Broiling may be done on a stick, on a wire rack, or on a pan. Tender cuts of meat (steaks, chops, hamburgers) or shish-kabobs, which are made by putting one-inch cubes of meat and vegetables on a skewer or stick, are cooked by broiling.

*Steps in Broiling on a Stick or Wire Rack.*

1. Place meat on stick or rack.
2. Broil, not too near the coals, until the side next to the fire is browned and meat approximately half done (about 5 to 7 minutes, depending on the thickness of the meat).
3. Turn, season browned side with salt and pepper. Broil other side in the same way.

*Steps in Pan Broiling and Rock Broiling.*

1. Have pan or rock red hot. Place meat on ungreased surface.
2. Turn frequently.
3. Do not cook too close to the coals.
4. Pour off excess fat as it accumulates in the pan. (Save this for frying or seasoning.)

*Steps in Simmering.* Simmering meat is cooking it in water. This is another method of cookery, and is used in preparing stews and meat soups.

1. Cover the meat with water. (Brown meat first, if desired.)
2. Season; cover the kettle.
3. Simmer over fire until tender. (Add vegetables, if desired.)

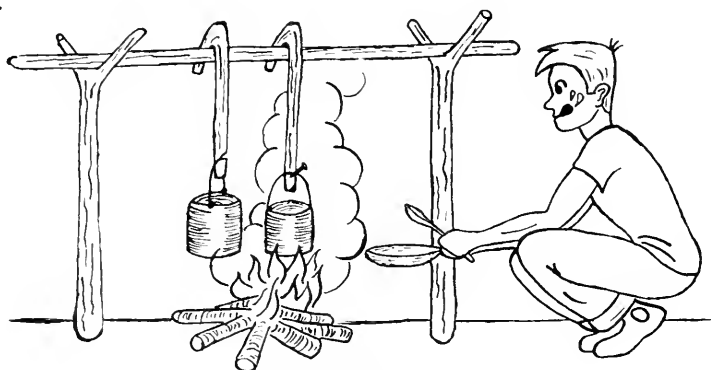
### **Other Campfire Cooking Methods**

Cooking in a reflector oven is fun and adds variety to the meals. An oven may be purchased, or the ingenious person can make his own from tin cans. Almost any baked food may be cooked in a reflector oven; it is well to begin with things which require a short cooking period.

A popular form of cooking, especially for day hikes, is a nonutensil meal.



Methods of nonutensil cooking (other than "stick" cookery) make use of hot rocks or coals. Baked eggs are an example of this.



Cooking with Hanging Sticks

## Suggested Menus

### BREAKFAST

- |   |   |
|---|---|
| 1. Oranges<br>Cereal<br>All-bran muffins<br>Cocoa   | 4. Fruit juice<br>Pancakes and syrup<br>Cocoa                   |
| 2. Berries<br>French toast and syrup<br>Cocoa       | 5. Plums<br>Scrambled eggs and bacon<br>Toast and jam<br>Coffee |
| 3. Peaches<br>Bread twists and bacon<br>Cocoa       | 6. Fruit juice<br>Cereal<br>Cinnamon toast<br>Cocoa             |
| 7. Oranges<br>Boiled eggs<br>Toast and jam<br>Cocoa |   |

### DINNER

- |  |  |
|--|--|
| 1. Hunter's stew<br>Lettuce and tomatoes<br>Rye bread<br>Chocolate milk<br>Gingerbread (mix) | 2. Hamburgers on a stick<br>String beans<br>Mashed potatoes<br>Whole wheat bread<br>Chocolate pudding<br>Punch |
|--|--|

- |   |   |
|---|---|
| <p>3. Little pig potatoes<br/>Fried apples<br/>Wheat bread<br/>Peaches, fresh or canned<br/>Milk</p> <p>4. Spaghetti and meat balls<br/>Peas and carrots<br/>Raisin bread<br/>Cookies<br/>Punch</p> | <p>5. Brunswick stew<br/>Cheese spread on lettuce leaves<br/>Bread sticks<br/>Fruit salad<br/>Chocolate milk</p> <p>6. Broiled franks and rolls<br/>Corn-on-the-cob, or canned corn<br/>Carrot salad<br/>Cup cakes<br/>Milk</p> |
|---|---|
7. Cold cuts  
Potato salad  
Biscuits and honey  
Jello  
Punch

## SUPPER

- |  |  |
|--|--|
| <p>1. Tomato soup<br/>Egg salad sandwiches on whole wheat bread<br/>Pudding<br/>Punch</p> <p>2. Bean hole beans<br/>Cole slaw<br/>Hot muffins<br/>Pears<br/>Milk</p> <p>3. Corn chowder<br/>Stuffed celery<br/>Rye bread<br/>Cup cakes<br/>Punch</p> | <p>4. Large fruit salad<br/>Peanut butter sandwiches<br/>Gingerbread (mix)<br/>Milk</p> <p>5. Shish-kabobs<br/>Tomato and cottage cheese salad<br/>Rolls<br/>Cookies<br/>Punch</p> <p>6. Rice and cheese<br/>Tossed salad<br/>Rye bread<br/>Fudge squares<br/>Milk</p> |
|--|--|
7. Vegetable soup  
Scrambled eggs  
Raisin bread  
Jello  
Punch

## Recipes for Trail Camping<sup>1</sup>

### BISCUITS OR TWISTS

#### Single Recipe

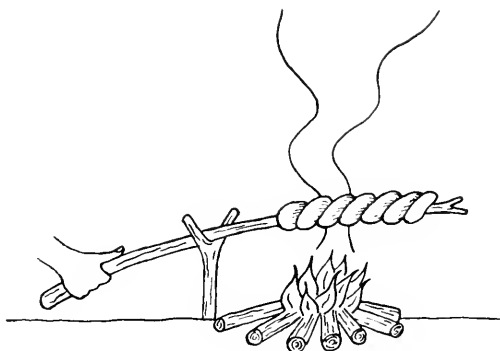
Yield: 3 or 4

- 1 handful flour
- 2 fingers salt
- 3 fingers baking powder
- 1 finger fat
- Water or milk to moisten

#### Large Recipe

Yield: 12

- 3 cups flour
- $\frac{3}{4}$  teaspoon salt
- 4 teaspoons baking powder
- 3 tablespoons fat
- $\frac{3}{4}$  cup milk or water



Biscuit Twists

Mix flour, salt, and baking powder. Work the fat in with a knife or stick (or clean fingers) and add just enough water to make a stiff dough. Mold the dough into a ribbon about two inches wide and as thick as your little finger. Get a stick of sweet green wood (birch, sassafras, poplar, or maple) about two feet long and three inches thick, peel the large end of the stick and pinch the dough together at each end to prevent it from unwinding. Toast it in front of the hot coals, turning it so that it bakes evenly. When done, the twist should be slipped off the stick easily. Butter the inside, put jam into the hole, or eat plain. Several sticks can be baking at once, but too much dough should not be baked on one stick. If an oven is available, dough may be cut into rounds with an empty tin can and baked 10 to 12 minutes in a hot oven.

### ALL-BRAN MUFFINS

- |                      |                              |
|----------------------|------------------------------|
| 3 fingers shortening | 2 handfuls Kellog's All-Bran |
| 4 fingers sugar      | 2 handfuls flour             |
| 1 egg                | 4 fingers baking powder      |
| 1 cup milk           | 2 fingers salt               |

<sup>1</sup> For further recipes see *One-Pot Cookery* by Eidola Bourgaize (New York: Association Press, 1953, \$2.50).

Beat together the shortening and the sugar. Add egg and mix thoroughly. Add milk and All-Bran and let soak until most of moisture is taken up. Stir the flour before measuring, mix flour, baking powder, and salt together. Add to first mixture, stirring only until flour disappears. Fill greased muffin pans two-thirds full and bake 20 to 25 minutes in a moderate oven.

Yield: 8 muffins

## PANCAKES

### Single Recipe

Yield: 6 or 8

1 handful flour  
2 fingers salt  
4 fingers baking powder  
4 fingers sugar  
 $\frac{1}{2}$  egg  
 $\frac{1}{2}$  cup milk  
1 finger fat, melted

### Large Recipe

Yield: 12 or 16

3 cups flour  
1 teaspoon salt  
 $1\frac{1}{2}$  teaspoonsful baking powder  
4 tablespoons sugar  
1 egg  
2 cups milk  
2 tablespoons melted fat

Mix the flour, salt, baking powder, and sugar (sifting is better). Add the egg which has been slightly beaten. Stir in milk and melted and cooled fat. Drop batter by the spoonful onto a hot greased griddle or frying pan. Cook on one side until full of bubbles; turn and cook on the other side.

## CORN CHOWDER

Knife  
Kettle  
Spoon  
Board

$\frac{3}{4}$ cup sliced onion	$\frac{1}{8}$ teaspoon pepper
3 cups water	$\frac{1}{2}$ teaspoon celery salt
2 No. 2 cans cream style corn	2 cups evaporated milk
2 teaspoons salt	2 eggs, hard-cooked

Combine all ingredients, except eggs. Simmer about one hour, stirring frequently. Slice hard-cooked eggs and add just before serving.

Yield: 10 servings

## FISH CHOWDER

Knife  
Kettle  
Spoon  
Board

2 lbs. fish (fresh or canned) without bones, or	10 slices bacon or piece of salt pork, diced
2 cups clams, chopped	1 large onion, sliced
1 quart milk	1 quart boiling water
2 teaspoons salt	4 or 5 potatoes (cut in cubes or slices)
1/8 teaspoon pepper	

Fry diced bacon or salt pork and onion together until onion is light brown. Add boiling water and potatoes (and uncooked fish if fresh fish is being used); cook until potatoes are done. Add cooked fish, then milk and seasoning, heat to boiling point. Serve with crackers.

Yield: 10 servings

## GYPSY EGG SANDWICH

Cut two slices of bacon into small pieces. Cook until crisp, add an egg and scramble; serve between slices of toast or bread.

Yield: 1 sandwich

## SLUMGULLION

Board  
Frying Pan  
Knife

3/4 pound bacon	3/4 lb. cheese, diced
4 onions, sliced	4 cups, left-over cooked meat, diced
2 No. 2 cans tomatoes	10 slices toast
3/4 teaspoon salt	

Cut bacon into one-inch pieces and fry with the onion; drain off part of fat. Add tomatoes, meat, and salt; cook about 20 minutes. Add cheese and cook until cheese is melted. Serve hot on buttered toast.

Yield: 10 servings

## TRAIL RAREBIT

Frying Pan  
Knife

2 tablespoons butter  
4 tablespoons flour  
1 $\frac{3}{4}$  cups evaporated milk  
1 pound cheese, diced  
1 No. 2 can peas  
1 $\frac{1}{2}$  teaspoons salt  
 $\frac{1}{4}$  teaspoon cayenne  
10 slices toast

Melt butter in frying pan, rub in flour until smooth; add milk and stir until mixture thickens and is smooth; add cheese and stir until it is melted. Add undrained peas and seasoning and cook until mixture is thoroughly blended. Serve hot on toast.

Yield: 10 servings

## SCRAMBLED POTATOES

Frying Pan  
Knife

2 medium-size onions	10 cold boiled potatoes, sliced
Bacon or other fat	10 eggs
Salt and pepper	

Cut onions fine and fry in heated fat until light brown. Add potatoes and cook quickly until brown. Break eggs in pan and stir mixture until the eggs are set. Add salt and pepper to taste. Serve immediately. (Add a little cheese or catsup, if desired.)

Yield: 10 servings

## SCRAMBLED EGGS

### Small Recipe

(makes 1 or 2 servings)  
2 or 3 eggs  
 $\frac{1}{4}$  cup milk or water  
3 fingers salt  
Pepper  
1 finger fat, melted

### Large Recipe

(makes 3 or 4 servings)  
6 eggs  
 $\frac{1}{2}$  cup milk or water  
1 teaspoon salt  
Pepper  
3 tablespoons fat, melted

Beat eggs slightly, add milk and seasoning. Melt fat in frying pan, add eggs, cook over low heat, scraping from the bottom of the pan as it thickens.

Corn Flakes may be added to the eggs as they are cooking. This makes a filling and appetizing combination.

#### BAKED POTATOES

2 No. 10 tin cans

Sand or dirt

Newspaper

10 medium-sized potatoes

Scrub potatoes and wrap each one in wax paper and then in wet newspaper. Using large tin cans and sand or dirt, pack the potatoes in so that no potato touches the sides of the can or another potato. Wet the sand or dirt well. Place the cans directly in the hot coals and leave for about 45 minutes, or until done.

#### LITTLE PIG POTATOES

Before baking potatoes, remove from one end of the potato just enough of center to make room for a small sausage. After the opening has been stuffed with the sausage, close with piece of potato removed and bake, following directions for baked potato.

#### ROAST CORN

Fold back the green husks and remove the silk; rewrap in the husks and then in damp paper. Lay the corn directly on hot embers to steam.

#### RING TUM DIDDY

Frying pan

Spoon

Knife

1½ pound diced bacon

3 large onions, sliced

2 No. 2 cans tomatoes

10 slices toast

2 No. 2 cans cream style corn

½ lb. American cheese, diced

Salt and pepper

Fry bacon and drain off part of fat. Cook onion with bacon until lightly browned. Add tomatoes and corn; when boiling, add cheese and cook slowly until cheese is melted. Season to taste and serve on hot toast.

## IRISH STEW

Kettle  
Large spoon  
Knife

10 onions	2 pounds shoulder of lamb or beef,
10 potatoes	cut into small pieces
Fat	Salt and pepper

Slice onions, place in heated kettle with meat, seasonings, and a little fat; fry until meat is brown. Cover with cold water and bring to a boil. Cook slowly for about 1½ hours, then add potatoes and simmer until tender. (Carrots and other similar vegetables may be added, if desired.)

## RICE AND CHEESE

Kettle  
Spoon

1¾ cups rice  
1¾ quarts boiling water  
1 teaspoon salt  
1 pound cheese

Add rice to boiling salted water; cook until tender and most of water is absorbed (about 1½ hour). Remove from fire, drain if necessary. Break up cheese and stir into mixture (while kettle is off the fire). Vary this by using macaroni or spaghetti, or by adding canned or fresh tomatoes.

Yield: 10 servings

## SHISH-KABOBS

Shish-kabobs may be made of one-inch cubes of beef, veal, kidneys, liver, ham, apple or tomato wedges, bacon, mushrooms, or onions in any combination. Fish may be substituted for the meat. Alternate your favorite combinations on a skewer and broil over the fire. Slip the shish-kabob onto a hot buttered roll.

## EGGS IN TOMATOES

Muffin tins or tin cups	8 tomatoes
Reflector oven	8 eggs
Salt and pepper or herbs	



Select medium-sized, firm tomatoes; cut off the stem and scoop out. Sprinkle salt and pepper or any favorite herb into the tomatoes. Break an egg into each tomato. Place tomatoes in muffin tins or tin cups; bake slowly in reflector oven. (A small amount of water or fat will prevent tomatoes from sticking to the muffin tins.)

#### BEAN HOLE BEANS

Pan

Earthenware pot

2 onions	1½ teaspoons salt
¾ pound navy beans	⅛ cup sugar
½ pound salt pork or bacon	⅛ cup molasses

Wash beans, soak overnight. Next morning, parboil until skins split. Drain. Place in heated earthen pot with pork or bacon in center. Add salt, sugar, molasses. Bury the onion in the beans. Cover closely, and bake in a bean hole 6 to 8 hours.

*The Bean Hole.* Dig a hole and line the bottom and sides with fairly heavy stones, leaving just room enough for the pot all around, but allowing for enough depth so that when the bean pot or pail is placed on the bottom its cover is six or eight inches below the ground level.

Have a good supply of dry kindling cut in short lengths. Place tinder (paper, shavings, or birch bark) in the bottom of the hole and ignite. Carefully lay the kindling on the flame, crossing the sticks to allow the draft to draw up through the wood. When the fire is well started, put on enough hard wood to round up over the hole in good shape. Right on top of this burning wood, place one or two flat stones large enough to be used later to cover the top of the pot or pail.

After the fire has burned down to a bed of coals, the stones will be sufficiently hot. Remove the cover stones and a part of the coals, set the bean pot in on the remaining coals, pack the hot embers around it, and place the cover stones on top.

Now shovel earth over all to a depth of a foot or more. If it looks like rain, cover with boards, or an old piece of canvas, or some other waterproof material. Leave the bean pot in the hole all day. If you use a pail, punch some holes in the top to allow steam to escape.

## HUNTER'S STEW

(Makes 4 servings)

1/2 lb. diced bacon	6 carrots, diced
2 medium-sized onions, sliced	4 large potatoes, diced
Water, but not too much	Any other vegetable you like
(stew, not soup)	Salt and pepper

Fry bacon crisp, add onions, and cook until transparent. Pour in cold water (enough to cover vegetables) and heat to boiling. Then add carrots and cook about ten minutes before adding potatoes. Season and continue cooking for 30 to 40 minutes.

## ALL-BRAN FUDGE SQUARES

Reflector oven  
Bowl  
Fork or egg beater  
Cup  
Spoon  
Pan

3 squares unsweetened chocolate (3 oz.)  
1/3 cup butter or shortening  
2 eggs  
1 cup sugar  
2/3 cup flour  
1/2 cup Kellogg's All-Bran  
1/2 cup chopped nutmeats  
1 teaspoon vanilla

Melt chocolate and butter over hot water. Beat eggs well, add sugar, and continue beating until light and fluffy. Add chocolate mixture. Stir in flour, All-Bran, nutmeats, and flavoring. Pour into greased baking pan, making layer about one-third inch thick. Bake in reflector oven about 30 minutes.

Yield: sixteen 2-inch squares (8 x 8 inch pan)

Variation: 1/2 cup cocoa may be substituted for chocolate. Omit chocolate and sift cocoa with flour. Melt shortening and add to egg and sugar mixture.

## COCOA

Pot

10 teaspoons cocoa

10 teaspoons sugar

Pinch of salt

2 cups boiling water

2 quarts milk

Mix cocoa, sugar, and salt; add the boiling water gradually, stirring until smooth. Boil three to five minutes. Add milk, heat, and serve. Condensed or dried milk may be used if fresh milk is not available.

Yield: 10 cups

# 13

## THE USE OF CANOES IN TRAIL CAMPING

One of the causes for a certain amount of romanticism and glamour associated with canoes and canoe tripping, has been the historical writings and legendary stories of the American Indian. We have every reason to believe that the first American canoe was made of birch bark by the Indians. It was the common means of water transportation not only for them, but later for the early white voyager and fur trader as well. The canoe, next to the raft from which it evolved, is recognized as the oldest form of water transportation. Its evolution began from a solid log which was later dug out to make it lighter, less cumbersome, and easier to handle. The ingenuity of the canoe design itself is remarkable and its test of functionalism has no equal. It is well known for its agility and versatility which makes it especially desirable for lake and river travel. In fact, it is the only watercraft adapted for tripping when portaging is necessary to travel from lake to lake.

In spite of its present-day popularity in camps, the canoe has not always been held in such high esteem by the general public. There was a time when the use of the canoe was regarded as tricky and treacherous and meant to be handled only by the expert swimmer and accomplished paddler. Due to extensive water safety education in recent years on the part of many agencies, it is now rather remarkable and satisfying to witness a change on the part of the public's attitude. Most catastrophes have resulted from misuse of the canoe without proper training and instruction. Now it is known that prevention of canoeing accidents is largely a matter of education. Canoeing programs, consequently, have become popular throughout the country, and the interest in canoe tripping as a specialized activity is reaching an all-time high.

Naturally, a camp's location is going to determine the extent of the use of the canoe for canoe tripping. It is not always necessary to travel through wilderness country in order to enjoy

canoeing, although the wilderness does offer more in the way of uninhabited places and it is the ambition of most seasoned canoeists to explore such regions. Many of the values derived from wilderness camping are also possible for camps which might be located in smaller chains of lakes or near a river which is conducive to good canoe tripping. If necessary the trail equipment can be transported to points of good advantage where this kind of program can be employed.

### **Values in Canoe Trail Camping**

There is no better way to expand the program for older youth if the locale is suited for canoe trail camping. It decentralizes the activity for an age group which is continually seeking newer and greater adventure by challenging them to master advanced skills. It is truly a socializing experience demanding greater physical and mental maturity than most other camping experiences require. This is not to infer that campers must be "tailor-made" for the trail, since there is a countless number of opportunities for greater growth and development, but it does mean that a camper must be "ready" for the experience.

To make canoeing further attractive and appealing many camps provide an extension to their own local camping program by organizing special groups for a wilderness canoe trail experience. This is generally a co-operative program with some camp that is already located in an enviable position by having access to thousands of forest acres and hundreds of lakes. Agreements can be made whereby leadership, training, and equipment are available for groups of this nature. In any event, canoe trip possibilities can be realized by camps which are not located in water country.

For canoe trail camping, obviously both territory and equipment are essential, but equally important is the possession of a philosophy which is the basis for such a program. Without developing the philosophy aspect to any great extent, it is important to list some of the values which are quite distinctive to trail camping.

1. As mentioned before, the trail program adds new flavor to the returning and experienced camper. It meets the needs of an age group which organized camping finds difficult to attract otherwise.

2. The skills required on the trail can be done best by an older age group. Advanced skills provide an added incentive and are more easily learned by an older age group than by the younger campers.

3. The art of outdoor living is restored to the camping program. It retains the word "camp" in camping. The natural setting is especially conducive to the teaching and learning of such trail skills as fire building, shelter making, portaging, canoeing, fishing, and food preparation. The natural resources become a vital part in this effort where the concept of *living with* nature is contrasted to *battling against* nature.

4. Competition and pressures of rigid schedules are certainly far more remote than in most organized play activity. This relaxed camping allows greater possibilities for camper expression, camper decisions, and camper responsibility. The basis of organization lends itself to a "camper-centered" program.

5. Canoe trail camping offers the counselor a good chance to do positive teaching and counseling without having the interference of outside sources which might detract from the desired gains to be made. The contact is continuous from the time the group leaves until the time when it returns. The group is small but it is large enough to enhance the give-and-take of group living, to encourage a co-operative spirit, and to accept individuals' differences which all contribute to the growth and development of each participant.

6. The trails offer firsthand information on the laws and lessons of nature. The beauty of the lakes, the quietness and sanctity of the woods, and the miracle of life itself all help to develop a keen and sincere appreciation of the universe.

With these values in mind on the part of the camp administration and its staff, the next step is to prepare the group for the trail experience. This section will be limited to the use of canoes for a trail program, not as an instructional manual for canoeing as such; but rather identifying some of the concerns in the area of instruction, planning, and execution of the trip.

### **Methods of In-Camp Instruction**

Canoe trips, whether of long or short duration, require care-

ful planning and preparation. Too great an emphasis cannot be placed upon proper training in regard to canoeing skills. A definite program of pre-trip instruction and conditioning is essential, although the amount and type will vary according to the proposed trip. The trip itself offers opportunity to learn and practice basic skills, but some proficiency in the fundamentals of canoeing and outdoor living is a prerequisite. The initial training and testing, of course, takes place in camp.

The primary objective of testing and training is to determine the extent of the camper's ability and then to help him develop those skills which are further required for a safe and happy experience. Testing programs will vary from camp to camp, but the primary factor is to keep the testing requirements realistic to the actual experience. In some camps too many stunts are added which make the logic of testing programs unrealistic and superfluous. This should be avoided by careful planning so that testing and training do have a true relationship to the trail activity as campers will encounter it.

The testing and instruction should be done on a cabin group or trip group basis. The counselor should be present at all sessions and, if possible, help with the instruction. By following through with his group in all phases of training, he is given the opportunity to know individual strengths and weaknesses. Even if campers pass the basic requirements, the counselor can give additional training to his group while it is on the trail.

Because of the limited stability of the canoe, the camp must be reasonably sure that the camper can take care of himself in the event of capsize. Therefore, an adequate pre-trip testing program for canoe trail camping would include requirements in swimming, swamping, and paddling.

### **Swimming Test**

The swimming test for each camper includes the following: jump or dive into deep water, tread water for one minute, swim a prescribed distance of at least twenty-five yards in deep water, and then float for at least a minute. The essential part of the swimming test is the poise and confidence demonstrated by the camper and not the distance he can swim. If he is taught never to leave his canoe in case of an upset, distance does not have to

be overstressed. No more than two persons should be tested at one time under the supervision of an instructor. At least two men in a boat should stay and row near the swimmers as they perform their test.

### **Self-Rescue by Staying with the Canoe**

The second phase of the testing program is the swamping or tip test. This is very important and nothing short of near-perfection should be accepted as meeting the requirement. Every camper should practice this method of self-rescue to insure his proper reaction in the stress of an emergency. To overcome the camper's initial fear of capsizing, the first thing he should be taught is that in the event of an upset he should NEVER LEAVE THE CANOE. He should never be tempted to swim to shore, even though it is but a short distance; but rather, regain his poise by staying with the canoe, since it is the best raft he could have for the emergency. Paddles and packsacks can be rescued only after the camper has properly secured himself and if there is no added danger of going after them. The best method for getting to shore is to turn the canoe right side up, roll into it, sit on the bottom, and paddle either with his paddle or using his hands as a paddle. The optional way of getting the canoe to shore would be to move along the gunwale to one end of the canoe and using a scissors or flutter kick to propel it. If this phase of testing is repeated a habit pattern is formed in knowing what to do and the "shock" of overturning in a canoe, then, is not too great. This is a very realistic approach to any program of canoe safety.

### **Paddling**

The third phase of testing is the paddling instruction. Technique in paddling has always been a subject of much concern, since every experienced paddler tends to develop his own form which suits him best. Fortunately, some agreement has finally been reached on names to be applied to certain strokes, so that such strokes as the J, bow, backwater, sweep, quartersweep, scull, crossbow, draw, pushover, and underwater are now established nomenclature and generally understood. Illustrations of these strokes can be identified with the accompanying diagrams.



Campers should become familiar with all the strokes but should be taught the basic ones first which include the straight-away, backwater, and hold. Often a mistake is made in teaching by demonstrating all the strokes at one time without allowing enough time in between to practice the basic ones. Inexperienced paddlers should learn the bow strokes before progressing to the stern strokes. When paddling is taught to those who have never been in a canoe, it is best to supplement the preliminary instruction without the use of canoes. It is easier to use one of the following methods when teaching beginners:

1. *Land Drill*. Some instructors have the group stand on land and move the paddle through the course of the stroke. This technique is used to good advantage, but if possible it is better to have the blade in the water so that the "feel" of the stroke is learned at the same time.

2. *Standing in knee-deep water*. Although campers are not in a paddling position, they learn the basic strokes by getting the "feel" of each stroke in the water.

3. *Dock Drill*. This method is widely used by having campers arrange themselves along the sides of the dock in a kneeling position and paddle in the water as if they were in a canoe. Individual corrections can be readily made as the instructor walks up and down the line helping each one.

The only reason for keeping campers on shore is for safety, control of the group, and ease and speed in teaching. However, campers are anxious to paddle canoes on the water, and as soon as the basic fundamentals have been taught to them this opportunity should be made available. There is greater motivation to learn with canoes than to go through the motions without them.

The responsibility of the bow paddler is more than a source of "horsepower" in the canoe. His duties are as follows: (1) setting and maintaining an even and steady rhythm; (2) properly executing strokes called for by the stern; and (3) observing obstruction over and under the water and to warn the stern paddler accordingly. The responsibilities of the stern paddler include: (1) keeping in rhythm with the bow paddler; (2) steering the canoe; and (3) giving over-all direction to loading and unloading the canoe.

The selection of a paddle is one of personal taste, but a good

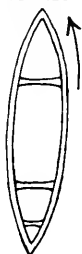
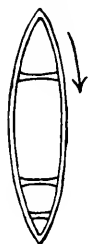
measurement to follow is to have the length of the bow paddle come just under the chin. The stern paddle should come to the height of nose or eyes of the canoeist.

The method of paddling from the knee position or from the sitting position has been discussed many times. Like most controversies, there are advantages and disadvantages for both methods. Both practices are common and each can be used effectively. Rather than having it an issue of "either, or" it really is an issue of "both, and."

The kneeling position is most effective in windy weather and in rough water. The stability of the canoe is increased as all weight is kept as low as possible. It is wise to lower the center of gravity to prevent any danger of an upset.

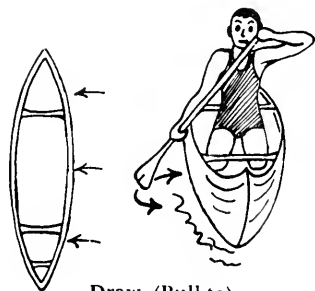
For long trips the sitting position is the most comfortable and the least tiring. It is not natural to be kneeling any length of time. There is less shifting of body, lessening the danger of an upset, when in a sitting position. On quiet days and on calm water the sitting position is very satisfactory. Even the canoe with a seat can be used for knee paddling when it becomes necessary.

#### BOW STROKES

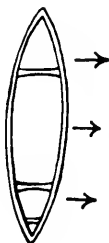


Bow Strokes

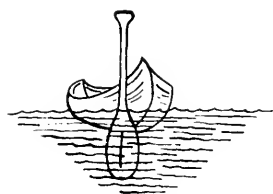
Backwater



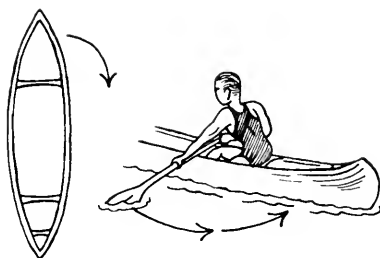
Draw (Pull-to)



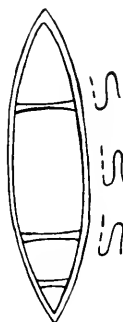
Push-Over



Hold



Quarter Sweep



Sculling



Reverse Sculling

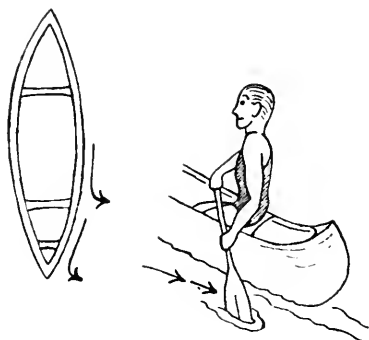


Bow Rudder

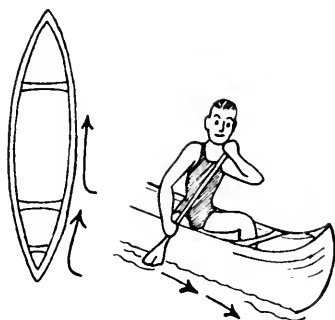


Cross Bow Rudder

## STERN STROKES



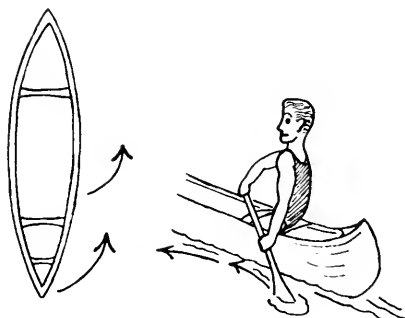
J Stroke



Backing (combination stroke)

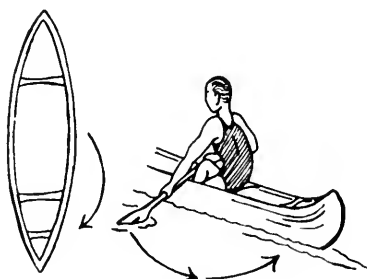


Half Sweep



Reverse Half Sweep

## SINGLE PADDLING STROKES



Full Sweep



Reverse Sweep



Inverted Sweep

## Embarking and Landing the Canoe

Campers should be taught to respect and handle the canoe with care at all times. This is important not only for safety reasons but to insure the best use for future groups as well. Trail equipment is a very expensive item. Much damage can be done to a canoe at the time of embarking and landing. The procedure is comparatively a simple one to execute. As illustrated in Picture 1 the canoe is lifted off the ground by two persons standing on opposite sides. With a hand-over-hand system the stern or bow end is placed in the water until the entire canoe is afloat. Caution is taken to prevent the bottom from scraping against any submerged tree trunks, roots, or sharp rocks.



PICTURE ONE

While one person holds the canoe with his hands and steadies it in between his legs as illustrated in Picture 2, the second person moves up into position keeping his weight low and balanced. This is done most effectively by placing the feet in front of each other along the center keel line and sliding hands along the gunwales. The canoe has greater stability when the



PICTURE TWO

center of gravity is kept low. Sometimes the shoreline is better suited for a parallel embarking and landing. The principles in landing remain the same: weight low and balanced.

### **Packing and Unloading the Canoe at Portages**

The system of packing and unloading canoes involves good judgment and teamwork. In theory the canoe should carry ten times its own weight, but prudent canoeists never load so heavily. A five-to-one ration is safer. It is also recommended that there be at least six to eight inches of clearance between the top of the gunwale and the water line, at the stern, when the canoe is fully loaded. All duffel and equipment should be packed. Equipment such as fishing rods or camera can be tied to the thwarts to prevent their being lost in case of an upset. Under no circumstances should heavy food packs or duffel be tied to the canoe. If the canoe should ever overturn the heavy weight might drag the canoe to the bottom. Placing the load is important. The stern end should be the heaviest, and the load should be packed accordingly, giving consideration to the weight of both paddlers as well. Either in loading or unloading, one man should hold the canoe while the other places the load.

Whether there are two or three persons, each has a definite responsibility to move the gear. Several different systems may be worked, but the canoe should be kept afloat at all times.

### Portaging the Canoe

The English translation of the French word, *portage*, is "carrying." Then speaking in terms of canoe tripping, this carrying might be from one lake to another lake; it might be around a waterfall or rapids; or it might be around a dam or bridge. After a few days on the trail the mechanics of this operation becomes routine and it is possible to establish a system with the least amount of wear and tear on the equipment or the campers themselves.

The canoe flip is probably the only type of carry which takes special training and diligent practice. Wherever possible it is advised that two persons should lift the canoe out of the water and have the flip take place on level ground.

The following pictures illustrate a technique used by many canoeists.



PICTURE THREE

1. Paddles are stored in each end of the canoe.
2. Paddles can be used in place of permanent yokes, if necessary.



PICTURE FOUR

1. Remove all obstacles that might interfere with the flip.
2. Place hands on gunwale on each side of yoke brace.
3. Turn canoe over on side by stepping toward it—do not drag it.
4. Feet are spread apart.



PICTURE FIVE

1. Raise canoe off the ground with stern hand grasping thwart under yoke brace.
2. Bend knees and cradle under canoe.
3. Feet are well balanced. 132





PICTURE SIX

1. Stern hand slips back to gunwale, while
2. Bow hand reaches across to opposite side.
3. Balance canoe just below the waist line to prevent "teetering."



PICTURE SEVEN

Canoe is raised to carrying position by:

1. A quick thrust from the knees and waist.
2. Raising the canoe and straightening legs at the same time.
3. Pulling with the bow arm while the stern arm aids in the push.
4. Having legs step into the rhythm.

The movement from Picture 6 to Picture 7, of course, is done very quickly. The flip is definitely a technique in contrast to that of some carriers who might be strong enough to muscle the canoe to their shoulders. While carrying it, it is possible to shift slightly the position of the canoe if one position becomes tiring. The hands can be placed either on the gunwale or on the thwart. Generally, the canoe is balanced in such a way that the bow is in line with the level of your eyes.

Putting the canoe down is accomplished by reversing the procedure, the only exception being a 45° body twist. The turn of the body is made just before the canoe is lifted from the shoulders.

Not all campers are physically capable of flipping a canoe by themselves nor should they be encouraged to do it. More campers can take turns carrying the canoe providing they receive help with the flip. Pictures 8 and 9 demonstrate the technique of the second camper helping the carrier with a "tail flip."



PICTURE EIGHT

1. Position for carrier is identical to that described above.
2. The helper's top hand is on the same side as the carrier.



PICTURE NINE

1. Position for carrier is still identical to that described above.
2. The tail man does most of the flipping.
3. A 1-2-3 rhythm is counted by both campers to assure similar coordination.

To be sure, the flipping technique requires a certain amount of physical stamina but surprisingly enough "small" campers can do it as well as "husky" campers. The secret, as in many physical activities, is rhythm and co-ordination.

While the portage is being made from one point to another point, the canoe carrier may rest by choosing any one of three alternatives. First, he may flip the canoe back to the ground. Second, he may elect to perch the bow end securely into a crotch of a tree or across a strong limb (about eight feet high). His third choice may be the method Pictures 10 and 11 describe, that is, to exchange with another carrier.

Of the three alternatives the second and third are by far the more satisfactory. Especially on long portages, the first alternative of reflipping the canoe each time can become a laborious job. When executing the third choice, two campers can work in pairs, having the second man walk directly behind or ahead of the canoe. After the exchange of the canoe takes place the first man carries the blanket or personal pack.

The portage itself adds diversion to the trip, and it isn't



PICTURE TEN

1. Second man faces the carrier while holding up the bow.
2. Stern is resting on the ground.



PICTURE ELEVEN

1. The carrier shifts into a similar position, giving the second man a chance to walk around to get under the yolk.

always necessary to think of it as a chore or as a necessary evil to canoe tripping. Time out can be taken for rest, for friendly chatter, for discussing immediate plans, or even for some exploring. The trip, when planned, should allow enough time to cross portages without the feeling of being "pushed."

### **Additional Help for the Use of Canoes in Trail Camping**

The subject of canoes is far more comprehensive than what appears on these pages. The available literature gives detailed instructions concerning the teaching of strokes, parts of the canoe, and general sizes and types of canoes. To avoid duplication in this area the following statements will give supplementary information for the use of the canoe for trail camping:

1. *Follow-up instructions.* An alert counselor watches for teachable moments while on the trail. Again, the motivation for learning is greater in the actual setting than it is back at camp. The camper is taught enough of the basic fundamentals to get along, but the real "polishing" occurs on the trail itself. Follow-up training is necessary in the areas of paddling, flipping, landing, embarking, and the loading and unloading of the canoe. The actual experience takes on new and different meanings.

2. *Qualified campers.* This could be a controversial issue, but it still remains true that campers learn more on the trail than they do in camp. Therefore, to develop and expand interest, the canoe trails should not be limited only to "expert" campers. Basic fundamentals are needed, to be sure, but the "expert" has developed his ability on the trail and not in camp.

3. *Break-in trips.* If the length of the camping period permits, it is generally an excellent idea to plan a one- or two-day break-in trip before the longer trip gets under way. It gives the counselor an opportunity to know his group and know what the strengths and weaknesses are for each camper. It gives the camper a "feel" for the trail and greater appreciation for individual responsibility in group living. Break-in trips should provide plenty of time for personalized instruction and adequate amounts of time to allow for gradual adjustment to outdoor living.

4. *Types of canoes.* In selecting a canoe, length, width, depth, and general construction qualities must be considered in relation to the type of paddling that is to be done. All relative values must be weighed before a choice can be made. Added length means added weight, greater camping capacity, and better stability. River canoe tripping demands a different style than lake tripping requires. For all practical purposes a canoe should never be shorter than sixteen feet and if travel is done across big water a seventeen-foot canoe is more desirable.

The inevitable question is often raised, "Are aluminum canoes better than canvas canoes?" Again this might be a matter of opinion. The durability, the maintenance cost, and the light weight are arguments in favor of aluminum canoes. The smooth lines and all-around function of the canvas canoe thus far have not been equaled, and for big lakes and long trips the canvas canoe surpasses the performance of the aluminum canoe. Canvas canoes are heavier to carry, so it becomes a matter of which argument offsets the other. When aluminum canoes first made their appearance the original argument was one largely of sentiment. It was difficult for some campers to adjust to a noisy canoe and the idea of a noncanvas canoe was disgusting. Can you imagine how the American Indian felt when the canvas replaced the birch bark canoe? Now manufacturers are designing plastic ones!

5. *Safety considerations.* Good tripping is safe tripping. Each individual camp must set up policies regarding trail activity in relationship to safety. Swimming from canoes, fishing from canoes, canoeing after dark, and determining the number of people for each canoe must be carefully considered. It is advisable to travel closely together. This not only adds to the fellowship, but in case of an upset, another canoe can give aid in the rescue. It is also suggested that trippers avoid traveling down the middle of large lakes. The paddling should be comparatively close to the shore line which is by far more interesting and in case of an upset or a quick storm there is a better chance to reach safety. On days when there are strong winds and high waves it is always recommended that travel be curtailed until such time as it becomes safe. *Take your time!* The success of your trip is not evaluated in

terms of miles or in terms of speed records. It is what happens to the group that counts. When planning a canoe trip, four miles an hour is top average speed for canoeing. Of course, wind, waves, portages, and water current are going to make this speed variable. Twenty miles a day is considered a full paddling day. From 1 to 1½ days per week should be set aside for "duff" days. This free time allows chances for washing clothes, fishing, swimming, caring for personal items, and exploring the immediate area. Enjoy the woods and, most important, enjoy each other!

7. *Emergency measures.* On each trip a repair kit which includes the following items should be in the canoe: marine glue, amberoid waterproof cement, silk patches (much better than canvas), a few tacks and nails, coil of fine wire, ball of strong string or fish line, a candle, and a pair of pliers. Emergency repairs made on the trail should be rechecked when the canoe is back in camp. It is advisable to take an extra paddle along.

8. *General maintenance.* Canvas canoes continually need attention to keep them in the best of condition. They should be checked periodically for loose thwarts, broken ribs, cracked planes, and canvas tears. Sand should be brushed out of canoes after each trip to prevent it from getting into cracks. In repainting a canoe it must be remembered that each quart of paint adds extra weight for portaging. Spot painting, in most cases, is sufficient. When a canoe needs a new coat of paint, the old paint should be removed beforehand. Canvas repairs can best be made if silk is used. Aluminum canoes are better off if not painted at all. Paint on aluminum has a tendency of either blistering or chipping. Canoes should be stored off the ground, sheltered from the sun. On the campsite they should always be turned over. Before any major repairs are attempted, boat manufacturers or dealers should be consulted for advice.

# 14

## CONSERVATION ON THE TRAIL

Conservation should be a part of all camp programs because the summer camp is an ideal place in which to teach children the wise use of natural resources. This means teaching conservation on the trail.

### **The Importance of Conservation**

On the trail, or trail camping as it is more often known, is probably the area in which conservation is of prime importance. In this kind of camping, conservation is important from the time a group leaves its base camp—the establishment of a temporary campsite in the evening, the breaking of camp in the morning, and the repetition of these processes—until the trip has ended, two days or a week after the start.

When camp is broken in the morning, the real camper knows that he must pick up and burn, or bury, all refuse; put out all fires with water or dirt; and leave the campsite a little better than when he found it.

During the day he follows the out-of-doors code of good manners that is based on consideration of others and respect for the natural wonders of the out-of-doors. He knows that others will follow along the trail, and so he conserves flowers, shrubs, and ferns, that they may be enjoyed by all who pass by. He protects the trees, by never cutting the bark of a tree for purely decorative purposes. He is extremely careful in the use of his knife and axe—using them only for the purpose for which they were intended—tools. During the day on the trail, wild life can be observed, and their actions enjoyed without disturbing them. It is great fun to watch the clumsy progress of a turtle, without transporting him far from his home, or just to rest quietly for a few moments to watch the bird life. Perhaps some food for the evening meal may be obtained. Here again conservation is practiced. Only enough berries are gathered, fish caught, or fruit picked to satisfy the hunger needs of the group.



Then when "trail's end" for the day is reached, conservation again plays an important part. A site is selected which will least destroy the naturalness of the area, one which will be safe for building fires, and one from which a supply of firewood may be obtained from trees that need to be removed for one reason or another. Even in cutting the boughs for a bough bed care should be taken to trim just a few from each tree, thus improving rather than harming the tree.

In preparation for trail camping a few projects have been outlined that should develop a sense of conservation in campers. For the younger campers, many of the projects are of the identification type, and these provide a background of knowledge for future activities. In the next age range, conservation practices of protection and improvement are suggested. Finally in the oldest group, the methods of curbing destructive forces in nature, the further improvement of natural resources, and the "help for others" program are emphasized. The projects listed are but a few examples of activities that emphasize "conservation" and good conservation practices.

### **Projects in Conservation by Age Groups**

#### **AGES 6, 7, 8**

*Project 1.* Make a collection of leaf prints and learn to identify various kinds of trees from their leaves. Leaf prints may be made by pinning the leaf on a sheet of white paper and spraying it with ink from a small spray or spray bottle. Then, when the leaf is removed, the veins are drawn in with a straight pen, and the leaf labeled for identification.

*Project 2.* Wild flower identification. In this project campers should be able not only to name the flower, but also to know the kind of soil it needs and whether it requires shade or sunlight.

*Project 3.* Positive identification of poisonous plants such as poison sumac, ivy, and oak. Along with the ability to recognize these plants on sight, the campers should learn the methods of eliminating them from the camp area.

*Project 4.* Bird watching and bird hikes. Campers should be able to identify the birds common to the campsite, and know the feeding habits of these birds.

*Project 5.* Making plaster casts of animal tracks. By finding the tracks, and then making a plaster of Paris cast of a track, campers learn to identify the animals that live on the camp property. Following identification, campers should obtain information regarding the feeding habits of these animals.

All the projects above are intended to provide information through collection and observation. This information will be put to use in later activities.

#### AGES 9, 10, 11

*Project 1.* The collection of tree seeds, and the planting of a seedling bed somewhere on the camp property. This seedling bed should be so located that campers are constantly aware of its presence and interest is thus maintained in the project.

*Project 2.* The removal of dead limbs from a section of woodland. A definite area should be assigned to the various villages or cabin groups. This develops a spirit of competition, with resultant pride in accomplishment.

*Project 3.* Creation of hedgerows. With the brush and dead limbs that are collected in the clean-up projects, artificial hedge rows can be established that will give shelter to birds and small animals. Brushpiles can also be maintained in remote sections of the camp that will provide a home for rabbits, and other small game.

*Project 4.* Feeding and watching of nocturnal animals. At some out-of-the-way place in camp, a strong light should be set up to illuminate a feeding ground. This light should be left on every night, and food provided for various kinds of animals. This food might include lettuce, carrots, nuts, peanut butter, apples, and corn. After about two weeks of providing food under the light, small groups of campers can observe animals feeding. It will be necessary to get the campers to the location just before dark, and have them watch *quietly* while the animals continue their feeding habits that have been established. This project can be continued over an entire summer.

*Project 5.* The feeding of small animals and birds. Seeds, suet, and corn should be placed in the areas known to be most frequented by birds and small animals. Seeds of native plants that furnish food for wild life should be collected and planted

in camp areas where this type of food supply does not exist at the present time.

#### AGES 12, 13, 14

*Project 1.* The removal of dead trees and their preparation for use as firewood. Just as with the younger campers who cleared the woods of brush and limbs, the older campers now pick a specific section of woodland and remove all dead trees. Then through the proper use of woodsmen's tools (axe, buck saw, two-man saw) the dead timber is cut in lengths to fit the fireplaces around camp, thus providing a good source of fuel.

*Project 2.* Planting of seedling trees. For this project it will be best to enlist the aid of your State Forestry Department, or the U.S. Forestry Service. These government services will provide information about the best seedlings to use on a particular campsite, and help to decide where they are to be planted. In general, try to plant seedlings in areas that show signs of erosion, areas that have been damaged by fire, and areas where the timber has been removed without thought of replacement. As a part of this project, seedlings may be collected from the woods and replanted in new sections of camp.

*Project 3.* Study of erosion. Campers may make an interesting study by collecting water that runs off after a heavy rain. Samples taken from various points around camp are allowed to stand in labeled quart mason jars for twenty-four hours. The amount of sediment in the bottom indicates the degree of erosion. This information can then be passed on to an older group, who may be able to correct the conditions causing the erosion.

*Project 4.* Building birdhouses. The information collected by the younger boys will determine for this project the kinds of birds most likely to make use of the houses, and the location where they should be placed. Information on designs and construction may be obtained from the National Audubon Society.

*Project 5.* Building bird-feeding stations and bird baths. As in the building of birdhouses this project should make use of information previously gathered, and the feeding stations and baths should be so located that campers may observe the birds.

*Project 6.* Raising and liberating small game. Campers in many states can obtain small game birds and animals from the

state "Conservation Department." These birds and animals are to be cared for during the summer months and liberated in the fall. Many of the birds will remain on the campsite and add to the natural attractiveness of the property.

#### AGES 15, 16, 17

*Project 1.* Stopping erosion. The two major causes of erosion are wind and water. A survey of any campsite will indicate points of erosion, and the trouble may usually be corrected in one of three ways. First, and probably the most common method of erosion control, is the planting of shrubs and vines. Lespedeza, honeysuckle, and heather are widely used especially on banks and in gulleys. Second, if the wind is a large factor in the soil erosion, trees may be planted so as to form a wind-break. The tree roots will hold the soil, and the leaves covering the ground will prevent the soil from drying out. Third, erosion along paths may usually be controlled by terracing. Logs may be pegged in place to form a long series of steps on steep paths.

*Project 2.* Cleaning forest areas of useless trees. To improve the quality of timber on a campsite, some trees probably should be removed. A competent forester or conservation specialist should go over the area with the group, and mark the trees to be removed for firewood. These will usually be weak trees, poorly shaped trees, or weed trees for the given location.

*Project 3.* Planning a conservation nature trail. The trail should include many of the conservation projects that have been previously mentioned, such as erosion control, bird-feeding stations, artificial hedgerows, and brushpiles. Trees, shrubs, and flowers should be so labeled that the campers' interest will be aroused. Examples of this type of label would be:

The Baseball Bat Tree (otherwise known as ash)

The Lead Pencil Tree (red cedar)

The Indian String Tree (basswood)

Frogs, turtles, or snakes may be placed in cages in a small pond along the trail, providing someone is responsible for their feeding and care. The conservation trail should have an inviting entrance, interesting labels, and a constant change of exhibits.

*Project 4.* Forest fire control. Older campers may be organized as a camp fire department, with the responsibility of developing a definite plan which would be put into operation if a fire

should occur. They can also be responsible for teaching the younger campers the first principles of fire safety by making a right-and-wrong exhibit showing:

1. Camp fires
2. Cooking fires
3. Fireplace sites

All these exhibits should be so labeled that others will know why one is right, and another wrong. The U. S. Forest Service and the various State Conservation Departments are always available for assistance with this project.

*Project 5.* Building an identification board. Identification boards, which can be used for trees, birds, animals, rocks, or flowers, can be constructed by a group of older campers with a minimum of tools. Cards or pictures representing the objects to be identified are mounted in rows, in the center of a piece of one-fourth inch plywood that is approximately twenty-four by forty-two inches. On either side of the board are mounted a corresponding number of labels. Below each picture and alongside each label a round-head stove bolt is fastened through the plywood. A lamp is then mounted on the top of the board and a box holding sufficient batteries to light the lamp is fastened to the back of the board. Two pointers are needed and they may be made from two heavy pieces of copper wire, with handles of some insulating material fastened at one end. The board is then ready for wiring and should be wired as follows:

1. Connect one pointer to one terminal of the lamp.
2. Connect the other terminal of the lamp to one terminal of the batteries.
3. Connect the other battery terminal to the other pointer.
4. Connect the stove bolt beneath each exhibit to the stove bolt alongside the proper label.

When the board is thus wired as shown in Plate A, the lamp will light when the pointers touch the correct label for each exhibit.

# 15

## TRAIL CAMPING IN WINTER

### The Rigors of Winter Camping

Just as there are those who decry the "country club" existence of many summer camps, and plea for the outpost and trip camp, so, too, there are those winter enthusiasts who claim that the only real advanced-camping experience is that of winter camping. This calls for abilities over and beyond any of the summer camping skills. In order to visualize some of the difficulties one might encounter, one should recall the wettest, coldest night on which he has ever set up camp on a canoe or pack trip and then imagine the conditions of a forty below zero night with a half-inch of ice on all the firewood plus a three-foot cover of snow! To establish a camp, erect shelter, cook, and bed down under those conditions, calls forth the best camping skills that one has.

The writer has purposely made the following material sound rigorous, as indeed it is, in order to be certain that proper precautions are taken by anyone who is contemplating an extension of camping into the wintry woods.

Campers learn to do things differently in the winter. In selecting a site, the cautious winter camper keeps low in cover in a well-protected spot out of the wind—instead of on a high breezy spot. The firewood problem is increased, for the need for both cooking and warmth keeps the woodsman on the run. Food problems are multiplied in spite of the fact that there is no need to worry about refrigeration. Just try to keep that eagerly awaited meal from freezing between the cooking fire and the mouth! The pack load becomes heavier because of the increased weight of extra clothing, more bedding, and extra heat-producing foods. To the natural obstacles of a trail can be added the task of maneuvering this extra load on snowshoes or skis.

Weather in many sections of the country may vary from a temperature of forty above to forty below in a period of twenty-

four hours or less and may add to the complications of snow, wind, ice, and rain. Of all of them, the greatest problem is rain—especially the kind that wets and freezes at the same time. Getting to cover and staying there is the best procedure. A good knowledge of weather signs should be a part of the winter camper's skills so that he is aware of weather conditions in advance.

### **In Case of Frostbite**

Frostbite is a continuous danger in winter. Freezing is most commonly caused by (1) exposure to wind and cold without adequate protection and covering, (2) pressure on various areas causing a reduction in good circulation, (3) loss of heat by radiation—especially due to wet clothing, and (4) fatigue. *Very* gradual warming with body heat is the best first aid procedure. Never rub the frozen area with snow, for this breaks the skin surface and leads to infection. Bring the body temperature up slowly—don't rush—don't bring the affected person into a heated room too soon. Members of a camping group in cold weather should be constantly on the lookout for the tell-tale white spots of frostbite on each other.

### **Clothing for Winter Camping**



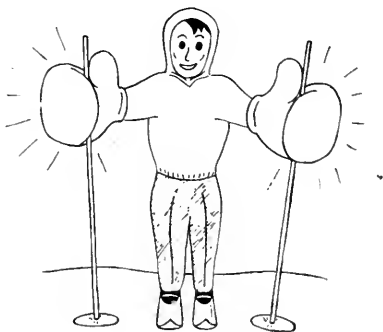
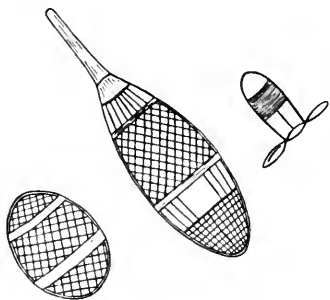
Clothing worn in winter camping should be loose-fitting enough to avoid binding and pressure. Wool garments from the skin out give the best warmth. The outer layer should be tightly woven and smooth surfaced (gabardine, poplin, and the like), rather than the fluffy, loose "snow bunny" material that collects snow. Several layers of light wool shirts and sweaters are far

superior to a single thick heavy garment, permitting the shedding of clothes as the temperature and exercise demand. The layers also provide a number of dead air spaces giving better insulation. In winter travel, under one's own locomotion, it is



best to be just under comfortable warmth (so that there is a need to keep moving to keep warm!). Then it is possible to add clothes when resting or stopping to make camp, in real comfort, without the danger of having the clothes soaked with perspiration. Avoid building up a sweat in winter travel—take it easy, go slow, and rest often. Keep dry. Find something to sit on instead of flopping in the snow. Brush snow off clothing.

Regardless of method of travel, select appropriate equipment, ski boots for skiers, snowshoe moccasins or combination rubber and leather snow pacs for snowshoers, and shoe pacs or galoshes for hikers. A couple of pairs of good heavy wool socks will be needed for foot warmth. Shoes should be large enough to permit heavy socks without binding the feet. Extra socks should be carried for changing.





Mittens rather than gloves should be used. Woolen inner mittens with outer windproof, water repellent mittens with gauntlets have proven to be most practical. For headgear, a cap with ear flaps and a visor is best. The parka-type garment with the hood, equipped with drawstrings, is an excellent garment for all-around winter wear. A wool muffler is a handy thing to include with your clothing, not only for neck warmth but for wear over the nose and mouth in the event of well-below zero weather.

### Fire Building in Winter

Fire building in the outdoors in winter is not always a simple process, and once the fire is blazing away it may be lost in a snow hole if some precautions against its being melted out from underneath are not taken. Instead of building it on top of the snow, it is necessary to pack the snow down, topped by a



log platform on which to make the fire. Otherwise the firebuilding is the same as in summer time. Standing dead wood is the best source of supply. Much more wood than anticipated will be needed as it is usually a difficult job to cook because of the extreme cold. A candle stub is an excellent aid in getting fires

started and should be included in the kit. Back-log reflectors are good for helping to direct the heat of the fire into the tent or shelter. Some winter campers prefer small portable stoves that can be utilized inside the shelter. It may be wise, depending on the size of the group, to build two or more fires—for cooking, drying, and warming.

### What to Eat on the Winter Trail

Foods and cooking, for the most part, should be simple, yet as substantial as possible. One-pot meals,<sup>1</sup> mushes, soups, and stews are the best—the simplicity of cooking, serving, and eating

---

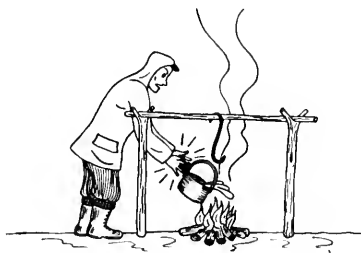
<sup>1</sup> *One-Pot Cookery* by Eidola J. Bourgaize (New York: Association Press, 1953, \$2.50) has many practical and interesting recipes for trail camping.

plus the elimination of additional cookpots make them favorites. Lots of hot foods and drinks will be needed, and provision should be made for supplying each winter camper with chocolate, maple sugar, dried fruits, nuts, and so forth for trail munching. Most experienced winter campers and mountaineers keep this emergency food with them at all times.



The use of dehydrated foods will be found necessary in winter. There is so much extra poundage to carry that as much water weight as possible must be eliminated. A menu should be planned so carefully that no canned or bottled food would be taken for which dried foods could substitute. Appetites are greater in the winter, so plan for extra portions all around. Anyone who

has never cooked out in winter should experiment with a meal or two in the backyard or close to home before heading out on a distant trail. The inclusion of cheese, bacon, fats, and precooked cereal grains should be a part of the larder. Some of the frozen foods and concentrated fruit juices make good additions to the winter menu. Hot tea, with lemon juice added, is very good, also hot fruit juice. Candy fruit drops can be used for sweetening snow as it melts in your mouth. This helps to quench thirst. Finding a good liquid supply is better than melting down snow to get it.



Pots and pans in extreme cold need to be handled carefully, for finger tips may be less sensitive than usual and burns may result. Avoid touching cold metals with the bare hand.

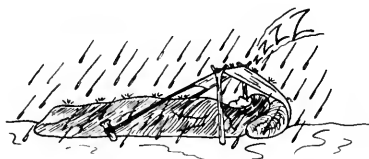
Shelter should be found or arranged early in the afternoon. While the cooks are busy with meal preparation, shelters can be erected for the group. A number of different possibilities

present themselves: lean-tos, tents, snow houses or snow caves. Lean-tos and tents are commonly used in summer camping and so they will not be considered here except to point out the good insulation value that snow has in conjunction with these shelters.

Snow houses or igloos can be built after some practice. The blocks are cut in domino shapes and piled up, spiral fashion, in decreasing diameters. Loose snow on the outside, with a fire on the inside to glaze the surface, makes this a good shelter. The snow cave is a burrow into a drift or snow bank where the snow acts as an insulator and protects the camper from the wind.

The camper should provide himself with good insulation underneath—boughs, hay, air mattress, newspapers, and so forth. He should also figure on more protection underneath than on top. Probably the best sleeping equipment for winter

camping is the pure down sleeping bag, although it is possible to use good wool blankets in a water repellent bag. The down bags are, of course, much lighter and more compact, but quite expensive. Again, experimentation in conditions prevalent in certain areas of the country may suggest other bedding that would be practical.



## General Equipment

Campers should be equipped with extra clothing—especially socks and mittens—matches, knife, and compass. The group should have a small hand axe, Hudson's Bay axe or a pruning saw for cutting firewood, shelter poles, and the like. A good first aid kit should be included as well as some means of illumination. Candles, white gas, and carbide lights, are often used since flashlights lose efficiency in cold weather. Repair materials for skis and snowshoes should be taken along also. A good rule to remember in respect to extra equipment weight is, "If there's a question, leave it out." Each pound of pack weight doubles and triples in weight on the winter trail.

## Preparation for the Novice

The following suggestions are made for those who contemplate trail camping in winter for the first time:

1. Get good trail camping experience in a summer camp.
2. This trail camping experience should include the acquisition of skills in packing, hiking, climbing, cooking, chopping, firemaking, tent and shelter construction, map and compass reading, and general campcraft.
3. Become familiar in the fall with the area that will be utilized in the winter. Study topographic maps, locate landmarks, get oriented to the area. Take a number of week-end trips during the fall to begin testing equipment.
4. Take a refresher first aid course.
5. Begin making equipment that will be utilized. Use the equipment to test it thoroughly.
6. Acquire some skills in skiing or snowshoeing. Snowshoeing is less expensive than skiing and requires a minimum of instruction.
7. Take a number of day trips to the campsite in winter—to get familiar with the problems involved and to recheck the equipment.
8. Plan an overnight or week-end trip to a winter cabin, or camp out where indoor sleeping facilities are close by if needed.

## Winter Pastimes on the Trail

The programs of winter sports are of course the obvious ones that come to mind when thinking of what to do at winter camp—there are always skating, sledding, tobogganing, snowshoeing, and skiing.<sup>2</sup> Some of the other aspects of camping that can be adapted to winter setting are nature study, being able to recognize the trees, shrubs, and general growth in the winter as well as in the summer, following tracks through the snow and trying to interpret what has been happening to a particular animal. There are excellent opportunities for map and compass work. The absence of leaves makes it possible to see greater distances, to be able to study contours, and to make beeline

---

<sup>2</sup> See pp. 108-110, *The Family Fun Book*, Helen and Larry Eisenberg (New York: Association Press, 1953, \$2.95) for winter game suggestions.

trails across frozen lakes that would be impossible in the summertime. There are opportunities to study various parts of a lake—cutting down through the ice to check on the layers, the construction of dark houses to fit over holes in the ice in order to observe what goes on below. These houses can also be used for fishing.

Winter camping also provides an opportunity for conservation education. Campers can observe soil under conditions different from those of summer and spring. They can erect feeding stations for the wild life.

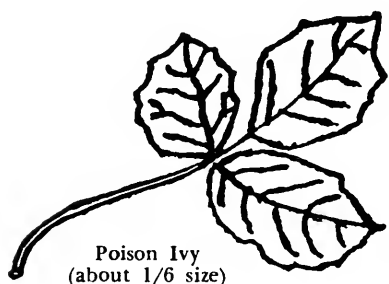
Winter camping is real adventure. It has great appeal because of the rigorous conditions that test one's ingenuity. It brings campers close to nature the year around and points up the continuity of the processes in the natural world. It has a degree of camaraderie and intimacy that is unique camping experience.

# 16

## WOODLORE

### Poisonous Weeds to Be Identified

In preparation for trail camping experiences it is well that counselors and campers be able to identify the trio of plant life that can cause them so much discomfort: poison ivy, poison oak, and poison sumac.



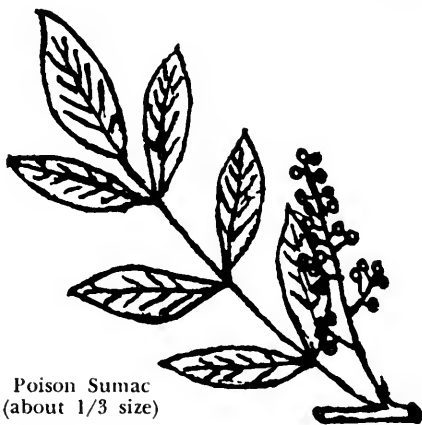
Poison Ivy  
(about 1/6 size)

Poison ivy is a shrub or vine with smooth, compound leaves of three leaflets. These normally have notches, as shown in the figure. Poison oak is a closely related species, shrubby in habit, with leaflet margins more closely toothed or lobed and more thickly covered with fine hairlike bodies. Both of these species are found on areas of high or low ground.

“Leaves three, let ’em be,” is the saying.

Poison sumac is a shrub with a single trunk (treelike) bearing compound glossy leaves (seven to thirteen leaflets), not serrated, with leaf stalks more or less red in color. This shrub is found mostly in low, wet ground.

*The Poison.* The poisonous yellow oil is generally the same in these three plants, and it occurs in the resinous juice found in all parts of the plants except in the internal wood. As a rule, one must make actual



Poison Sumac  
(about 1/3 size)

contact with the plants to be affected, but more susceptible persons have been affected by smoke from burning plants.

Symptoms of poisoning, which appear soon or several days after exposure, are a reddening of the skin and tiny watery blisters. The accompanying itching is pronounced.

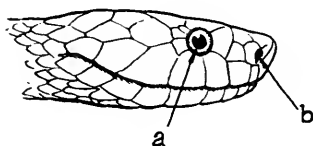
**Prevention.** Before going afield or directly after exposure, wash the exposed parts of the body with a cake of brown soap.

## How to Distinguish Poisonous Snakes

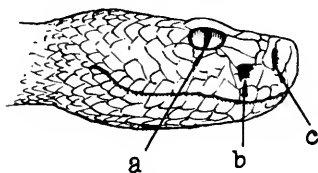
The copperhead, water moccasin, and rattlesnake are all members of the pit viper group, which is distinguished by a pit or hollow halfway between the eye and the nostril. They are stout-bodied snakes, with triangular heads on slim necks. Their eyes have vertical pupils, and the underside of their short tails has but one row of scales for all or most of the length.

### Where Poisonous Snakes Are Found

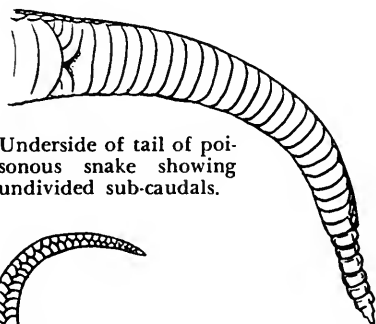
**Copperhead.** The copperhead is found from Massachusetts down the entire Atlantic and Gulf Coasts, with the exception of the peninsula of Florida, and westward to the Mississippi, as far as Illinois and across Texas.



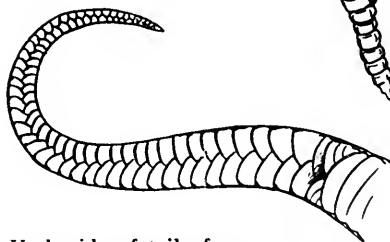
Head of non-poisonous snake showing round pupil (a), nostril (b).



Head of poisonous pit viper showing elliptical pupil (a), pit (b), and nostril (c).



Underside of tail of poisonous snake showing undivided sub-caudals.



Underside of tail of non-poisonous snake showing sub-caudals divided into two rows.

*Rattlesnake.* Timber rattlers are common in the upland regions of the East. In the spring, they may be found sunning themselves on rocky ledges at the mouths of the mountain dens, where they have hibernated together with copperheads and various harmless snakes. If disturbed when out of immediate contact with a sheltering crevice, the rattlesnake will give warning of its presence by sounding the rattle. If closely approached, it will strike, but the full striking distance is usually under eighteen inches.

There are over a dozen kinds of rattlesnakes, among which are the swamp rattler, black snapper, and prairie rattler—all grayish brown with black or dark brown blotches—and the diamond back, the largest and most dangerous of rattlers, which is found in the southeastern states. These are all characterized by rattles on the tail.

*Water Moccasin.* The northern water snake and the cotton mouth, or water moccasin, are often confused. The water snake, which is found from Canada to Florida and west to the Mississippi, is a harmless serpent.

The deadly water moccasin is found only south of the Dismal Swamp of Virginia, west to central Texas, and up the Mississippi Valley to southern Illinois.

*Coral Snake.* The coral snake is found only along the Atlantic and Gulf coastal plains from North Carolina south, and up the Mississippi to Indiana and Ohio.

### **How to Avoid Snake Bites**

When walking through areas where snakes are likely to be found, it is wise to wear protective clothing—canvas leggings, with high shoes or leather boots—to stop or break the fangs. Even then, special care should be taken in crossing trunks of fallen trees and stone walls, from which snakes might strike above the protected legs or on the hands and arms. A first aid kit for snake bite should be carried.

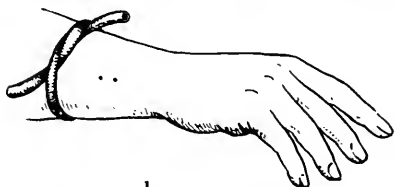
### **Treating Snake Bites**

The seriousness of a snake bite depends upon many things: the kind and size of the snake; the amount of venom and



whether it was injected into a vital part, such as an artery; and the size of the victim.

#### FIRST AID FOR SNAKE BITE

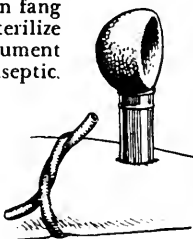


1  
Apply tourniquet between fang marks and heart, then sterilize wound and cutting instrument with iodine or other antiseptic.



2  
Make two crossed incisions through fang marks at least  $\frac{1}{4}$  inch deep. Only single lengthwise incisions on fingers and toes.

3  
Apply suction by means of suction cup or mouth. Moisten edge of suction cup before using.



4  
Draw tourniquet only tight enough to retard circulation, not halt it completely. Release tourniquet briefly every ten minutes.

#### Weather Signs\*

Clouds foretell the weather, and the wind brings it. Just watch the clouds, note the wind direction, and follow the suggestions given to forecast coming weather.

The important thing to keep in mind is that all changes in the weather must come with the wind. If there is no wind, there will be no change in the weather. The wind blows *from*, not *to*. A north wind blows from north to south.

After wind direction has been determined, look up at the sky and compare what you see with the descriptions below.

#### Sunset Skies

Sunset skies foretell weather for the following day and for this reason their study is most valuable.

*Clear weather sky:* Whether the weather at the moment be clear or cloudy, a rosy sky at sunset or at sunrise will bring clear weather for the following day.

*Good weather sky:* A faint lavender sky, with high blue above the clouds in late afternoon or early morning foretells good weather. Seldom seen in winter.

*Rain warning sky:* A dull Indian-red sky at sunset, or at sun-

rise, warns of rain within the next twenty-four hours, possibly accompanied by strong winds.

*Rain warning:* A sky of dark clouds at sunset against a background of glaring white sunlight is usually the forerunner of rain within twenty-four hours.

*Wind sky:* A golden amber sky foretells of wind rather than rain. A pale yellow sky warns of the coming of rain the next day. The same signs prevail at sunrise.

### **Morning Skies**

It is possible to determine quite early in the day the weather which that day will bring.

*Rain warning sky:* A morning sky of dark Indian red usually brings rain, quite often accompanied by strong winds, and in summer months sometimes thunderstorms.

*Rain warning sky:* A halo around the sun, or a large halo around the moon is a beautiful sight, and usually is a sure sign of rain within from twelve to twenty-four hours.

*Weather change* is foretold by white fleecy clouds. A *N* to *NE* wind brings an overcast sky, but no rain for forty-eight hours. *SE* to *SW* winds indicate rain in twenty-four hours.

*Uncertain sky:* A "fish scale" sky with wind from *NE* to *SW* may bring a short late afternoon rain. Other winds bring no rain. This sky favors good weather.

*Rain or snow:* Light gray to black clouds with east to southerly winds indicate heavy rain or snow. *N* to *NE* winds bring light rain; *W* to *N* winds no rain.

*Rain warning:* Small dark gray clouds usually bring rain by nightfall. If wind is blowing from *E* to *SW*, then rain is fairly certain within twenty-four hours.

*Good weather sky:* A gray sky at sunrise is the forerunner of a day of fair weather. An early morning fog usually is a harbinger of a rainless day, and so is early morning frost or dew.

*Fair weather sky:* White fluffy clouds bring good weather for the day. Frost or dew on the ground in the morning is an almost certain sign of no rain for the day.

*Strong winds sky:* A sunrise above a bank of clouds indicates the coming of a windy day, but with little chance of rain, though possibly overcast sky.

---

• Permission to use granted by Louis D. Rubin, Richmond, Va.

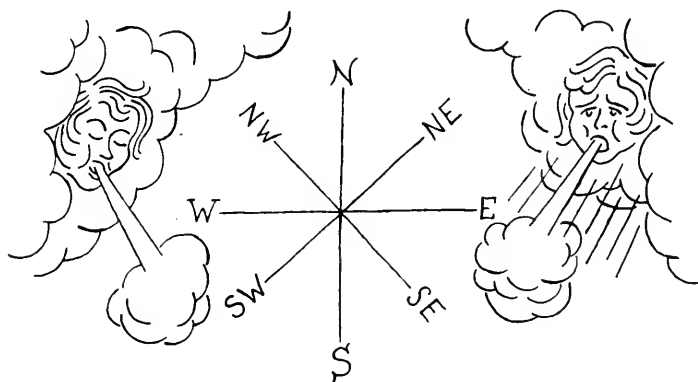
## Forecasting Weather by Wind Direction

1. Good weather usually comes with *NW*, *W*, and *SW* winds. But always remember, whether it be clear or raining, no change in the weather will come until the wind changes. If no wind . . . no change in the weather!
2. Winds from *NE*, *E*, and *S* bring bad weather.

If it rains in the morning with winds from *NE* to *S*, and the wind begins to shift to western points, then the rain will soon stop.

If the sky is cloudy and the wind shifts from *SW* to *SE*, or from *NW* to *NE*, then look for a squall.

If the sky is clear and the winds begin to shift back and forth between *SE* and *SW*, then bad weather is on the way with rains or wind squalls.



Wind Direction

## Lashing and Knot Tying

Lashing is a method of fastening sticks together by binding with cord. This method avoids the use of nails, and it is used when a temporary fastening is desired, when a living tree should be spared, or when the object is to be dismantled easily, as at the end of a stay in camp.



Lashing is generally preferred to nailing because of its rustic appearance, the ease with which it can be assembled or taken down, and because the making of it requires few tools. There are several types of lashings.



A "*square*" lashing joins two sticks together at right angles.



A "*diagonal*" lashing joins two sticks in the form of an X, or on the diagonal, preventing a scissor-like action.



A "*sheer*" or "*round*" lashing joins two sticks along the length of one, rather than at an angle.



A "*continuous*" lashing holds several small sticks at right angles to a long stick.

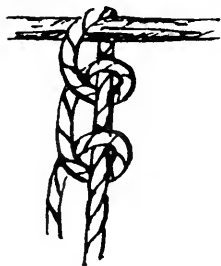
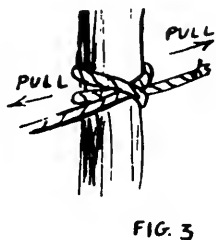
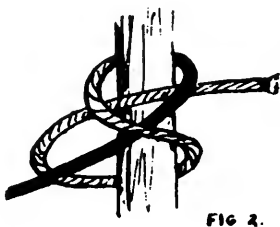
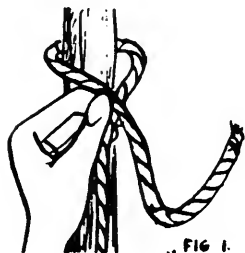
### Materials

Materials used in lashing depend upon the size of the article to be made, and the use to which it will be put, as well as to the extent of what is handy. String and twigs are used in making small craft articles, while heavy cord and strong saplings or trees are used in making heavy articles, like furniture. Binder twine, a shaggy kind of cord, is often used because it is cheap, very tough, and easily obtained at any hardware store. A finer cord or string may be used to get a more finished effect.

## Knot Tying

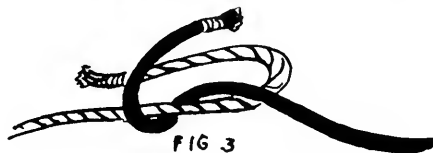
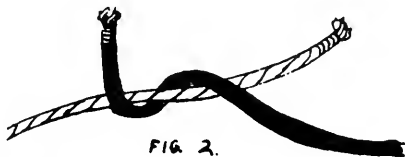
Knot tying is an essential in good lashing, and the learning of knots should precede the beginning of lashing. The clove hitch, the half hitch, and the square knot are most generally used.

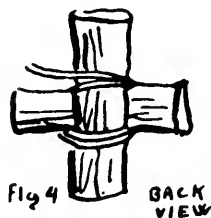
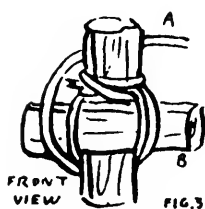
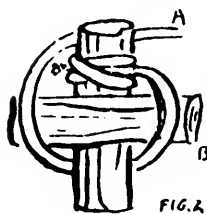
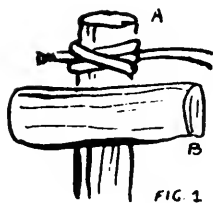
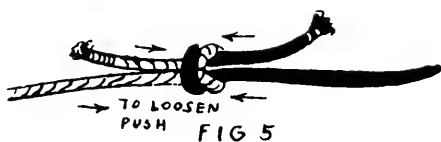
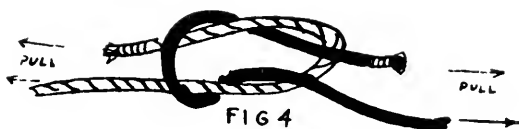
*Clove Hitch.* Use this knot to make fast an end of rope, as in starting a lashing, or to tie a rope to a post. Avoid using when the other end is tied to something movable, such as a boat or a horse, as movement tends to loosen the knot. A clove hitch will not slide up and down on the post, but will stay in place when tight.



*Half Hitches.* Use two half hitches to make rope fast to a ring or a post. One half hitch is often used to give extra holding power to a knot.

### Square Knot.





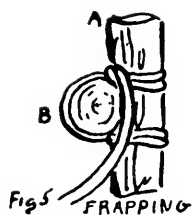
### How to Lash

*Square Lashing.* Place two sticks in the desired position (Fig. 1).

Tie a clove hitch to the vertical stick (A) at one end of the cord, slipping the knot around so that the long length of the cord pulls directly out from the knot. Be sure you do not pull back *against* the knot, but pull so that you tighten the knot (Fig. 1).

Bind the sticks together by passing the cord down in front of the horizontal stick, under and out to the back, around the upright stick and back to the front of the horizontal stick, then up in front of the horizontal stick, in back of the upright (above the knot), and out to the front again, in the beginning space (Fig. 2). Repeat this winding several times, following the first turns; and pulling tightly, as you make the cord lie neatly beside previous turns. Be sure to follow the "square" you have made, and do not cross the cord over the center of the sticks, either on top or underneath (Figs. 3 and 4).

When the sticks are firmly bound, tighten the binding with a *frapping*. This is done by winding the cord between the two



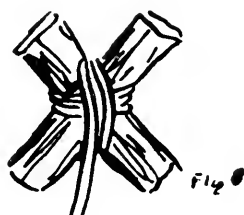
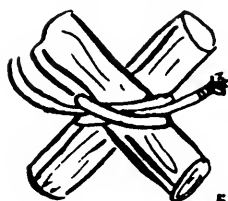
sticks, so that the first binding is pulled tighter together (Fig. 5).

End by making two half hitches around one stick, or by joining the end of the binding cord to the starting end by a square knot. Clip off, and tuck the ends underneath the lashing.

*Diagonal Lashing.* Place two sticks in position, forming an X, and hold them in this position continually (Fig. 6).

Make a clove hitch around the two sticks, as shown (Fig. 6). Make three or four turns around one fork (Fig. 7), then three or four turns around the other fork, pulling tightly (Fig. 8).

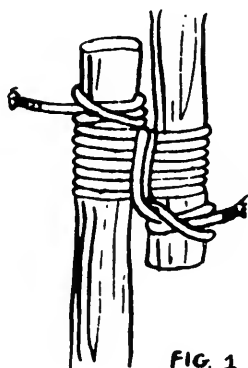
Frap and end as in a square lashing.



*Sheer or Round Lashing.* Place sticks in the desired position.

Start with a clove hitch around one stick. Take several turns around both sticks, making sure the turns lie tightly and neatly beside each other.

Frap, and end with two half hitches, tucking both ends under the lashing (Fig. 1).



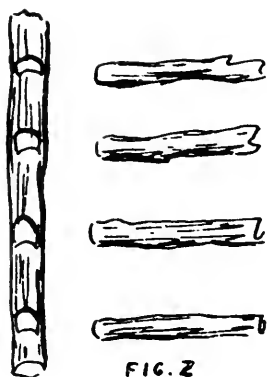


FIG. 2

Start with a clove hitch at one end of the long stick at the *middle of the cord*, so that there are equal lengths on either side of the long stick. Place this hitch so that the ends of the cord pull the knot tight, as they come up from the underside of the long stick (Fig. 3).

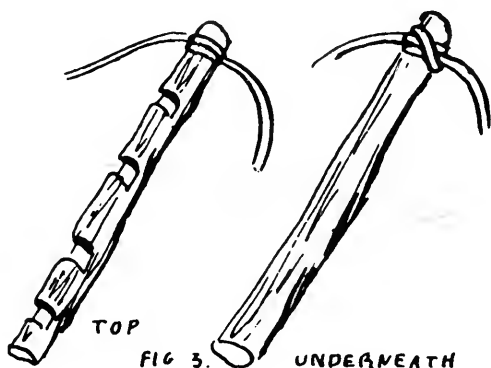


FIG. 3. TOP UNDERNEATH

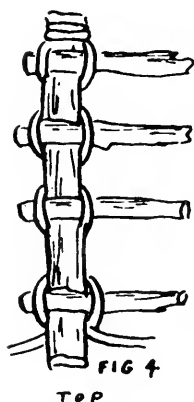


FIG. 4 TOP

Bringing the cords around from this knot, pull them over the first small stick, following the lines of the long stick (Fig. 4); pull down and under, crossing the cord on the underside of the long stick (Fig. 5), and coming up again, ready to bind the second small stick. Pull the cords over the second small stick in the same manner, following the lines of the long stick, going under, crossing underneath the long stick, and coming up ready for the third

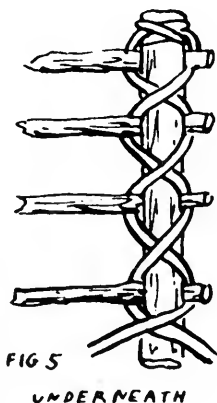


FIG. 5

UNDERNEATH



stick. Continue this to the end of the small sticks so that the cord always runs parallel to the long stick on the top and crosses on the underside. Pull tightly at each small stick.

End by two half hitches, and tuck ends of cord under last small stick.

## Things to Be Lashed

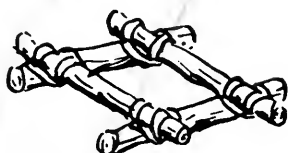
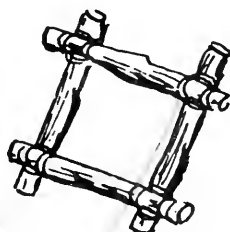


*Coat hanger.* Select two sticks, as illustrated, one with a natural fork, and the other very smooth and slightly curved. Trim ends smoothly. For best results, notch at joining point. Use square lashing.

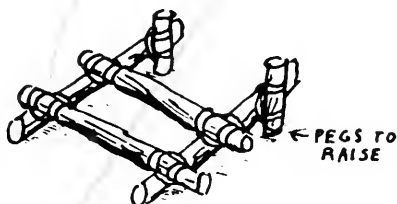
*Picture or mirror frame.* Select four smooth twigs or branches. Trim neatly, making them the desired size. Watch at the joining points.

Use square lashings, binding with string or fine cord for small frames.

Use the same principle for a *shoe rack* or a *suitcase rack*.



Suitcase rack, to raise suitcase off damp ground, or to prevent scraping on floor.



Shoe rack, to facilitate sweeping floor, keep tent tidy, etc. Raise in back by small pegs.



*Peg for pole, or tree.* Select a forked stick, trim neatly with axe or knife, and flatten it on the back, as needed, to fit closely to a pole or tree.

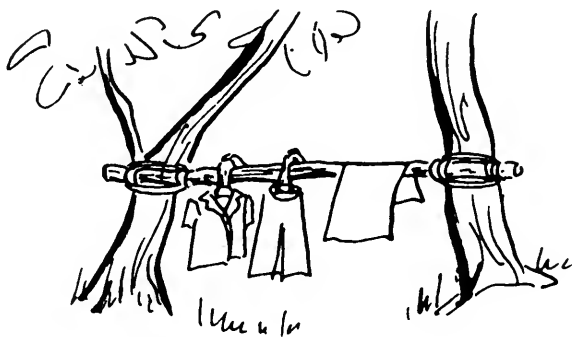
Use sheer lashing. (You may not need to frap this.)

*Rack for towels, swim suits, and*



*other articles* or for keeping lunches or sweaters off the ground on day hikes.

Use square lashings. Look for two convenient trees, or make a set of tripods with diagonal lashings.



# **Progressive Campcraft Program**

*Planning Chart for Unit of Experience*

Counselor

Cabin No.

Unit of Experience	Objectives of the Experience	Description of Preparation and Planning	Skills That Are Needed for a Successful Experience	Leaders and Equipment Needed; Sources of Information

## **APPENDIX**

# Equipment and Food Record Blanks

## EQUIPMENT AND FOOD LIST TRAIL DEPARTMENT

Camp

Group or cabin name: Trail counselor(s)

Members of party: Number: Names:

Route of trip:

Date leaving: After which meal:

Date returning: After which meal:

Number of days Number of meals Number of camper meals

### Equipment List (To be filled by trail director)

ITEM	OUT	IN	ITEM	OUT	IN	ITEM	OUT	IN
Canoes			Knives			Matches		
Tarps			Forks			Toilet paper		
Air mattresses			Spoons			Shovel		
Tents			Large spoons			Axe		
Packsacks			Ladle			Canoe glue		
Basket			Spatula			Rope		
Plates			Can opener			Nails		
Cups			Cook-kit bag			Bug bomb		
Mixing bowls			Oven			Paddles		
Covers			Grate			Fire flares		
Frying pan			Scouring pads			Sausage bag		
Kettles			Dish towel			Soap		

Equipment damaged:

Equipment lost:

Checked out by: Date:

Checked in by: Date:

Canoe numbers:

Is a dump necessary? Where? Departure Time:

Is a pickup necessary? Where? Date: Time:

# Food List

	No. of Meals	Amt.		No. of Meals	Amt.		No. of Meals	Amt.
Apples (dehy.)			Fruit cocktail			Sugar, powdered		
Apple sauce			Fruit juice			Sugar, white		
Apple pie spice			Jam			Tea		
Apricots (dehy.)			Honey			Tomatoes		
Bacon			Macaroni			Tomato paste		
Baking powder			Mapleine			Weiners		
Beans			Milk (dehy.)					
Beans (dehy.)			Mixed fruit (dehy.)					
Beans & pork			Noodles					
Beef & Bar-B-Q			Oatmeal					
Beef & gravy			Onions (dehy.)					
Beets			Pancake mix					
Bisquick			Peaches (dehy.)					
Bouillon			Peaches—can					
Bran muffin mix			Peanut butter					
Bread			Pears					
Cabbage (dehy.)			Peas					
Cake mix			Pepper					
Carrots (dehy.)			Pie crust mix					
Celery salt			Pineapple					
Cheese			Popcorn					
Cherries			Potatoes (dehy.)					
Chili con carne			Prunes					
Chocolate bars			Pudding			<i>Guide List</i>		
Cinnamon			Punch base			Map		
Cocda			Raisins			Compass		
Coffee			Ralston			Matches		
Cold cereal			Rice			Knife		
Corn			Ry-Krisp			Pliers		
Corn meal			Salami			Gloves		
Corned beef hash			Salmon			First aid kit		
Cornstarch			Salt			Notebook		
Dates			Shortening			Fishing tackle		
Dill sauce			Soup, tomato			Needle & thread		
Eggs (dehy.)			Soup, Veg-a-R			Turn in map		
Farina			Soup, vegetab.			and food list		
Fish mix			Spaghetti			Sleeping bag		
Flour			Spaghetti sauce			Campers		
Flavor salt			Spam			Money		
French toast mix			Sugar, brown					



Food Request for Trail Camping

Camp		
Counselor	Village	Date

Total number of campers and staff on trip

Time leaving	Time Returning
--------------	----------------

Quant.	Item	Check		Quant.	Item	Check	
	<i>Breakfast</i>				<i>Vegetables</i>		
	Cocoa				String beans		
	Oatmeal				Peas		
	Syrup				Carrots		
	Pancake flour				Tomatoes		
					Corn		
	<i>Beverages</i>				<i>Dessert</i>		
	Punch				Pudding		
	Milk				Jello		
	Choc. syrup				Cake mix		
	Vegetable juice				Gingerbread		
	<i>Fruit</i>				Candy (trading post)		
	Apricots						
	Prunes				<i>Misc.</i>		
	Grapefruit				Sugar		
	<i>Staple</i>				Raisins		
	Dried beans				Bisquick		
	Macaroni				Salt		
	Spaghetti				Pepper		
	Spaghetti sauce				Cinnamon		
	Potatoes				Jam		
	Kidney beans				Peanut butter		
	Baked beans				Soup		
	Brown beans				Popcorn		
	Onions						

<i>Perishables (Kitchen)</i>							
		Cheese (macaroni)				Hamburger	
		Lard				Hot dogs	
		Eggs				Cold ham	
		Oranges				Bacon	
		Bread				Stewing meat	
		Cookies				Cold cuts	
						Carrots (F)	
						String beans (F)	

## Staging Area Practice

### *Use of Tools*

- |   |                                    |  |
|---|------------------------------------|--|
| 1. Demonstrate use of knife in (a) cutting wood; (b) cleaning fish; (c) peeling vegetables. | 1. Sharpen and care for hand axe.  | 1. Demonstrate use of large axe.                     |
| 2. Carry hand axe properly, cut small wood for fire.  | 2. Cut six-inch log with hand axe. | 2. Cut standing tree with large axe and two-man saw. |

### *Clothing*

- |  |  |  |
|--|--|--|
| 1. Present yourself for inspection, suitably clothed for the season and weather, for a hike ten miles or longer with special attention to foot gear. | 1. Demonstrate proper method of making a pack.   | 1. By use of campfire and/or sun, dry soaked clothing and shoes in efficient manner. |
| 2. List clothing essential for an overnight hike.  | 2. Launder at least six pieces of camp clothing. |  |
|  | 3. Sew up a rip and sew on a button.             |  |

### *Fire Building*

- |  |                              |  |
|--|------------------------------|--|
| 1. Know your state regulation for building a fire in the open.   | 1. Build a fire in the wind. | 1. Bank a fire to last for two or three hours. |
| 2. Build a fire, using not more than two matches. Demonstrate how fire should be extinguished to prevent possible forest fire. | 2. Build a fire in the rain. |  |

### *Camp Cooking*

- |  |   |   |
|--|---|---|
| 1. Boil potatoes, make cocoa, fry bacon. | 1. Cook a complete meal in the open, using simple camp utensils and following a menu you have planned yourself. | 1. Work out menus and exact quantities of food needed for a party of six for a three-day trip, either hiking or by canoe. |
| 2. Use bake oven to bake twist of dough. |   |   |

### *Shelters*

- |  |  |  |
|--|--|--|
| 1. Pitch a tent properly—pup tent or ridge pole. Ditch properly. | 1. Make a tent of tarpaulin or other makeshift material. | 1. Make or help make a semipermanent shelter from natural resources. |
|--|--|--|

### *Sanitation*

- |                                |                                     |   |
|--------------------------------|-------------------------------------|---|
| 1. Construct a sanitary privy. | 1. Demonstrate how to purify water. | 1. Demonstrate how food should be cared for in trail camping. |
|--------------------------------|-------------------------------------|---|



### *Bed Making*

- |  |  |  |
|--|--|--|
| 1. Make satisfactory bed on ground of natural materials and sleep overnight. | 1. Demonstrate how to make a bed roll. | 1. Demonstrate how to make a blanket envelope. |
|--|--|--|

### *Direction Finding*

- |  |   |                            |
|--|---|----------------------------|
| 1. Demonstrate use of (a) watch; (b) compass; (c) sun for direction finding. | 1. Plot a course on a geodetic survey map and follow it with a compass. | 1. Make a map of the camp. |
|--|---|----------------------------|

### *First Aid*

- |   |   |   |
|---|---|---|
| 1. Know treatment for blisters, minor cuts, skin poisoning. | 1. Demonstrate what to do in case of shock or fainting. | 1. Demonstrate artificial respiration.  |
| 2. Demonstrate what to do in case of a sprained ankle.      | 2. Demonstrate how to treat a fracture.                 | 2. If camp is located in section of country where poisonous snakes are found, demonstrate what to do in case of snake bite. |

### *Fire Prevention*

- |  |  |  |
|--|--|--|
| 1. List causes and dangers of forest fires.                | 1. Know the location of fire-fighting equipment in camp.                                     | 1. Observe a fire lane in woods and give reasons for or against its effectiveness. |
| 2. Demonstrate putting out a campfire by approved methods. | 2. Participate in group test to put out a brush or bonfire without hose at unannounced time. |  |

### *Canoeing*

- |  |   |  |
|--|---|--|
| 1. Demonstrate control of loaded canoe, paddling from rear seat.                           | 1. Demonstrate method of righting and climbing into capsized canoe. | 1. Demonstrate methods of portaging canoe by one or two persons. |
| 2. Give evidence of knowledge of loading canoe for various conditions of wind and weather. |   |  |

### *Conservation*

- |   |  |  |
|---|--|--|
| 1. Tell why forests should be protected.  | 1. Demonstrate methods of preventing soil erosion. | 1. Select small area of camp property in need of reforestation, and plant and care for seedlings recommended by state forestry department. |
| 2. Collect material for fuel or shelter, based on knowledge of forest conservation. |  |  |

## *Fishing*

- |   |  |   |
|---|--|---|
| 1. Know the variety of fish native to the waters near the camp. | 1. Assemble fly rod and line, and fly or hook.                   | 1. Assemble casting rod, line, and proper bait for fish found in body of water in, or near, camp. |
| 2. Assemble rod, line, and hook for still fishing.              | 2. Demonstrate proper techniques of fly casting.                 | 2. Demonstrate proper casting techniques.   |
| 3. Bait hook and fish at proper depth.                          | 3. Pick grounds, catch fish, using landing net, clean, and cook. | 3. Catch fish, using gaffing hook to land, clean, and cook.                                       |
| 4. Catch fish, remove from hook, and clean.                     |  | 4. Demonstrate how to remove fishhook, sunk into flesh beyond barb.                               |
|   |  | 5. Assemble a first aid kit for this purpose, including pincers and iodine.                       |

## *Nature Lore*

- |   |  |  |
|---|--|--|
| 1. Identify the trees that are native to camp environment.  | 1. Identify the birds that are native to section of country in which the camp is located.                                  | 1. Complete a course in star study that includes: (a) identification of stars, constellations, planets; (b) value of knowledge of astronomy to man.                    |
| 2. Complete a study of trees that includes: (a) usefulness to man, (b) understanding of conservation.           | 2. Complete a study of birds that includes: (a) usefulness to man, (b) habits, (c) protection and care.                    | 2. Identify reptiles found in and near camp.   |
| 3. Identify small animals found in or near camp.  | 3. Identify plants and flowers found in or near camp.  | 3. Complete study that includes: (a) useful and dangerous reptiles, (b) control.   |
| 4. Complete a study of small animals that includes: (a) usefulness to man, (b) habits, (c) protection and care. | 4. Complete a study of plants and flowers that includes: (a) usefulness to man, (b) edible or poisonous, (c) conservation. | 4. Develop a weather bureau for camp that will include elementary instruments for determining wind directions, rainfall, barometer reading, temperature, and so forth. |
|   |  | 5. By means of flag signals, weather maps, and bulletins, keep camp informed of possible weather conditions for a period of one week.                                  |

## BIBLIOGRAPHY

- Administration of the Modern Camp*, Hedley S. Dimock, Ed. (New York: Association Press, 1948)
- Art of Group Discipline, The*, Rudolph M. Wittenberg (New York: Association Press, 1951)
- Camp Counselor's Manual, The*, John A. Ledlie and Francis W. Holbein (New York: Association Press, 1946)
- Camper's Handbook, The*, Dillon Wallace (New York: Revell, 1936)
- Campfire and Council Ring Programs*, Allan A. Macfarlan (New York: Association Press, 1951)
- Camp Program Book, The*, (New York: Catherine T. Hammett and Virginia Musselman (New York: Association Press, 1951)
- Handbook of YMCA Camp Administration, The*, John A. Ledlie and Ralph Roehms, Eds. (New York: Association Press, 1949)
- Let's Go Camping*, Harry Zarchy (New York: Knopf, 1943)
- One-Pot Cookery*, Eidola J. Bourgaize (New York: Association Press, 1953)
- So You Want to Be a Camp Counselor*, Elmer F. Ott (New York: Association Press, 1946)
- Summer Magic*, Kenneth and Susan Webb (New York: Association Press, 1953)
- Talks to Counselors*, Hedley S. Dimock and Taylor Statten (New York: Association Press, 1939)
- Your Own Book of Campcraft*, Catherine T. Hammett (New York: Pocket Books, Inc., 1950)

## **Bibliography of Visual Aids**

Camping Education, YS-401—2 reels      Rental \$3.50

The training program at National Camps for Professional Leadership. The progressive, decentralized program in camping for boys and girls is clearly pictured.

Battling Bass, YS-332—1 reel      Rental \$2.00

A "Field and Stream" production showing bass fighting from a light boat, including thrilling underwater shots of bass being hooked.

How Nature Protects Animals, YS-614—1 reel      Rental \$2.00

The protective adaptation of animals in different environments.

Indian Canoemen, YS-349—1 reel      Rental \$2.00

Canoeing, portaging, camping and finding food in the wilds of Canada.

The Weather, YS-466—1 reel      Rental \$2.00

The circulation of air on the earth's surface. The progress of a wave cyclone is traced with detailed consideration of warm and cold fronts. A comprehensive sequence presents the instruments used in weather observation.

Tie Your Own Flies, YS-352—1 reel      Rental \$2.00

The Knack and Skill of Tying Your Own Artificial Flies.

Social Development, YA-230—2 reels      Rental \$6.00

An analysis of social behavior at different age levels and the reasons underlying the changes in behavior patterns as the child develops. A follow-up filmstrip to be used to stimulate group discussion is provided.

These films may be secured from the Branch Libraries of Association Films, Inc.

Broad at Elm, Ridgefield, N. J.

78 East Adam Street, Chicago 3, Ill.

351 Turk Street, San Francisco 2, Calif.

1915 Live Oak Street, Dallas 1, Texas

## **Dealers in Equipment for Trail Camping**

### **LIGHTWEIGHT CAMPING OUTFITTERS**

Iveson and Peterson  
17034 Orchard Ridge Avenue  
Hazel Crest, Ill.

### **TENTS**

Tom Barnard  
2183 Hendon Avenue  
St. Paul, Minn.

### **FOOD PACKETS FOR TRAIL CAMPING**

Ad. Seidel and Co., Inc.  
1245 West Dickens Avenue  
Chicago 14, Ill.

### **ALL TYPES OF CAMPING EQUIPMENT**

Harry Goldberg  
218 Market Street  
Philadelphia, Pa.

David T. Abercrombie  
97 Chambers Street  
New York, N. Y.

L. L. Bean Company  
Freeport, Maine

### **ALL CAMPING SUPPLIES**

Dakins Sporting Goods Company  
Temple Street  
Waterville, Maine

Male's Camping Equipment  
Junction of Kilbourne and Plankington  
Milwaukee, Wis.

### **TENTS, PACKS, CANVAS GOODS**

Joy Brothers Manufacturing Company  
Milwaukee, Wis.

**TENTS, FISHING EQUIPMENT, SLEEPING BAGS, AXES, COMPASSES**

**H. and H. War Surplus**  
**1058 W. Baltimore Street**  
**Baltimore, Md.**

**Bacharach Rosin Company, Inc.**  
**14 N. Howard Street**  
**Baltimore, Md.**

**LUMBERING TOOLS**

**Snow and Nealley Company**  
**84-90 Exchange Street**  
**Bangor, Maine**

**FOOD PACKS FOR TRAIL CAMPING**

**KAMP-PACK**

**Bernard Food Industries**  
**559 W. Fulton Street**  
**Chicago 6, Ill.**

# Index

- "A" tent, 94
- Abandoned buildings, avoidance of, 52
- ABC's of Campcraft*, 9
- Abdominal pain, 50
- Action skills, 40
- Additional help for use of canoes in trail camping, 137
- Adhesive tape, 14, 48
- Adirondack pack basket, 83
- Adirondack shelter, 53, 94
- Administration of program, 11
- Age groupings, 11
- Aids in chopping, 67
- Air mattress, 81, 87
- Alcohol, rubbing, 48, 49
- All about packs, 80
- All-bran fudge squares, recipe for, 118
- All-bran muffins, recipe for, 111
- Amberoid waterproof cement, 139
- Ammonia, aromatic spirits of, 48
- Animals, feeding and watching of nocturnal, 142
- Animal tracks, casts of, 142
- Appendicitis, symptoms of, 50
- Appendix, 167-178
- Artificial respiration, 51
- Asia, 73
- Aspirin, 48
- Auger, 14
- Australia, 73
- Axe, as basic equipment, 13
  - care, 65
  - hold, 67
  - honing, 65
  - temper, 65
  - position, 67
  - use, 13
- Axe handle, danger of loose, 66
  - how to loosen broken, 67
- Axe sheath, 66
- Axemanship, 33, 41, 64
- Axes, types, of, 64
- Babylonia, 73
- Baked potatoes in coals, recipe for, 115
- Baking, outdoor, 44
- Balanced menu, 105
- Bandages, 48
- Band-aids, 48
- Barbecue project, 29
- Bean hole beans, recipe for, 117
- Bed clothing, 90
- Bed making, 84-90, 173
- Bed rolls, 87
- Bee sting, 49
- Bibliography, 175
  - visual aids, 176
- Big Dipper, as compass, 62
- Birch bark, 102, 120
- Bird bath, 143
- Bird feeding, 142
- Birdhouses, 143
- Bird watching, 142
- Biscuits, or twists, recipe for, 111
- Blanket roll, 82
- Blankets, 88
- Blisters, 49
- Boiled milk for diarrhea, 50
- "Bomber" jackets, 78
- Book for Junior Woodsmen*, 74
- Book reviews for staff training, 45
- Boric acid, 48, 49
- Bough bed, 86
- Bourgaize, Eidola J., 149, 175
- Bow and arrow, 71
- Bow paddler, duties of, 125
- Breakfast menus, 109
- Briefing of trail counselor, 45
- Broiling, 108
- Bronze Age, 73
- "Browse," 85
- Bush hook axe, 65
- Bucket, 13
- Bucksaw, 73
- Building identification board, 145

- Bunk, canvas, 86
- Burns, care of, 49
- Bushman's saw, 74
  
- Cabin counselor, 39
- Cabin group, primary program focus for, 12
- Calamine lotion, 48
- Calcium hypochlorite, 55
- Camera, 130
- Camp, daily schedule, 13
  - centralized, 11
  - decentralized, 12, 37
  - definition of, 8
- Camp cook, 38
- Camp cooking, 172
- Campcraft activities, 21
- Campcraft program, 11-15
  - introducing progressive trail campcraft, 12
  - objectives, 11
  - organizational patterns, 11
  - standard practices for trail camping, 13-15
- Campcraft skills, 7, 12
- Campers, checked for physical condition, 15
  - qualified for canoeing, 137
  - median age of, 46
- Campfires, 99-103
  - tent or cabin experience in, 21
- Camping Magazine*, 7
- Campsite, checked for sanitary condition, 15
  - orientation to, 16
  - selection of, 20, 22, 141
- Canadian Department of Mines and Resources, 58
- Candle, 14
- Canoe, 15, 51, 120-139
  - advantages of, 121
  - capsized of, 53
  - evaluation of, 120
  - general maintenance of, 139
  - how to flip, 134, 135
  - packing and unloading, 130
  - types of, 138
- Canoeing, 173
  - embarking and landing, 129
- Canoe trail camping, 120-139
  - break-in trips, 137
  - emergency measures, 139
  - follow-up instructions, 137
  - general maintenance, 139
  - locale, 120
  - philosophy, 121
  - planning and preparation, 123
  - safety considerations, 138
  - taking one's time, 138
  - testing programs, 123
  - types of canoes, 138
  - wilderness experience, 121
- Cant hooks, 14
- Canvas, 14, 94
- Canvas bunk, 86
- Canvas tents, types of, 94
- Carborundum stone, 75
- Care of axe, 65
- Care of knife, 72
- Care of staging area equipment, 36
- Care of tent, 98
- Caribs, 73
- Cedar axe, 64
- Centralized camp, 11
- Checking food list on the trail, 107
- Check-up on return from trip, 53
- Chef, 14
- Chlorination of water, 55
- Chopping strokes, 68, 69
- Circular wood saw, 73
- Cleaning forest areas of useless trees, 144
- Clean-up of camp, 107
- Clear weather sky, 157
- Clorox, 48
- Clothing, 15, 42, 47, 77-80, 172
  - for winter camping, 147
- Clove hitch in knot tying, 161
- Coathanger, how to lash, 165
- Cocoa, recipe for, 119
- Code, trail, 62
- Collection of nature specimens, 19
- Compass, 13
  - reading of, 42



- substitutes for, 61
- use of, 59
- Compress, cold, 48
  - gauze, 48
  - hot, 50
- Conservation, 140, 173
  - appreciation of, 42
  - projects in, 141
  - education through winter camping, 153
  - standards of, 15
- Conservation projects, 141-145
  - ages 6, 7, 8-141
  - " 9, 10, 11-142
  - " 12, 13, 14-143
  - " 15, 16, 17-144
- Construction projects, 25
- Content of trail camp program, 40
- Continuity in trail program training, 46
- Cooking, 13, 41, 172
- Cooking altar, 101
- Cooking crane, 101
- Cooking fires, 107
- Cooking kits, 13
- Cooking trench, 101
- Cook-outs, 22, 44
- Copperhead snake, 155, 156
- Coral snake, 156
- Corn chowder, recipe for, 112
- Cotton, 48
- Counselor-in-training program, 46
- Counselor, basis of training for, 13
  - briefing of, 45
  - knowledge needed by, 6
- Crackerbarrel sessions, 45
- Crisscross fire, 100
- Crooked knife, 72
- Crowbar, 75
- Daily schedule of camp, 13
- Dead limbs, removal of, 142, 143
- Dealers in trail camp equipment, 177, 178
- Decentralized layout of camp, 12
- Definition of trail camping, 37
- Dehydrated foods, 104
- Dehydration, 50
- Demonstration sessions for learning
  - physical skills, 44
- Diagonal lashing, 163
- Diarrhea, 50
- Dietician, 38
- Diets and sanitary food preparation, 51
- Dimock, Hedley S., 175
- Dingle stick, 101
- Dinner menus, 109
- Direction finding, 42, 59, 61, 173
- Direction hike, 18
- Discipline on the trail, 52
- Discussion group, 44
- Dishwashing, 56, 57
- Disposal area for refuse, 33, 56
- Disston, Henry, 73, 74
- Ditty bag, 81
- Dizziness, 50
- Dock drill, 125
- Dodds, J. Edward, 9
- Double-bit axe, 64
- Douglass, William, 8, 9
- Down feathers, 87
- Draw knife, 14
- Draw shave, 14, 75
- Drowning, 50
- Dubbing, 79
- "Duff" day, 139
- Duffel, 130
- Duffel bag, 84
- Duluth pack, 82, 83
  - disadvantages of, 84
- Durdan, Merrill J., 8
- Edwards, Helen, 9
- Eggs in tomatoes, recipe for, 116
- Eggs, packing of, 105
- Eisenberg, Helen and Larry, 153
- Embarking and landing canoe, 129
- Emery stone, 65
- England, 73
- Equipment and food record blanks, 168
- Equipment, care of, 36
  - checking of, 15
  - packing, 41
  - use of, 41

- Erosion, stopping of, 144
  - study of, 143
- Eskimos, 72
- Evaluation of experience, 15, 33
- Evening campfire, 102
- Experience, 39, 40
  - evaluation of, 15, 33
- Explorer tent, 94
- Eye, foreign body in, 49
- Fair weather sky, 158
- Family Fun Book*, 153
- Fatigue, 50, 52
- Feathers, 87
- Felling a tree, 69
- Field trips, 44
- Filmstrips, 176
- Fire building, 13, 41, 172
  - carelessness in, 99
  - in rain, 102
  - in winter, 149
  - types of materials for, 102
- Fireplace, 33, 95
- Fire prevention, 173
- Firewood, 102, 103, 143
- First aid, 41, 48, 173
  - contents of kit, 48
  - techniques, 41
- First aid book, 48
- First aid on the trail, 48
- Fish chowder, recipe for, 113
- Fishing, 41, 174
- Fishing rod, 130
- Flat file, 65
- Flutter kick, 124
- Food, 104-119
  - balance in menu, 104
  - dehydrated, 48
  - limitation of perishable, 48
  - list, 104, 107, 169
  - for six on a six-day trip, 106
  - for winter trail, 149, 150
  - packing of, 105
  - planning of, 42, 105
  - preparation of, 51
  - requests for trail camping, 171
  - table of amounts, 106
- Food and water, 48
- Footwear, 78
- Forecasting weather by wind direction, 159
- Forest fire control, 144
- Fracture, 50
- Frapping, 162
- Frostbite, what to do for, 147
- Fur trader, 120
- Game, raising and liberating small, 143
- Gear, checking of, 15
- General equipment for winter trail camping, 151
- General information needed by leader, 41, 42
- Good weather sky, 157, 158
- Greeks, 73
- Green soap, 48
- Grindstone, 65
- Ground beds, types of, 85
- Ground cloth, 85, 97
- Groups, hiking, 14
  - precamp training for, 15
- Guiding principles in use of packs, 80
- Gypsy egg sandwich, recipe for, 113
- Hairy mammoth, 73
- Halazone, 48, 55
- Half hitches in knot tying, 161
- Hammett, Catherine T., 9, 175
- Head cold, 50
- Health and safety, 15, 42
- Heat exhaustion, 50
- Heather, 144
- Hedgerows, creation of, 142
- Helgisen, Harold, 9
- Hemorrhage, checking, 51
- Hester, Weldon, 8, 9
- Highway, walking on public, 52
- Hiking trips, 52
  - for experience, 24
  - historical points of interest on, 16
- Holbein, Francis W., 175
- Honeysuckle, 144
- Horses, 15
- "Hot dogs," 14

- How to avoid snake bites, 156
- How to lash, 162
- How to make a good trail bed, 84
- Hunter's stew, recipe for, 118
- Hunter-trapper fire, 99
- Hygiene, personal, 57
- Identification board, building of, 145
- If rain comes, 102
- Igloos, 151
- Importance of conservation, 140
- In-camp training, 42, 43
- In case of frostbite, 147
- Indian, American, 71, 72, 120
- Insect bites, first aid for,
- Insect repellent, 48, 90
- Introduction of trail campcraft program, 12
- Iodine, 55
- Irish stew, recipe for, 116
- Isolation of transferable illness, 51
- Jackets, coats, and sweaters, 78
- Jungle hammocks, 13
- Junior counselors, 45
- Kapok, 87
- Kerosene, 74
- Kilpatrick, William H., 7
- Kindling, 102, 103
- Kit, first aid, 14
  - repair, 14
- Kitchen waste, disposal of, 56
- Knapsack and haversack, 82
- Knife, 71, 72
  - care of, 72
  - throwing, 72
  - use of, 41
- Knives, types of, 71, 72
- Knot tying, 41, 161
- Land drill in paddling, 125
- Landmarks, noting, 61
- Lashing, 162-166
- Lashing and knot tying, 160
- Latrine, 55
- Lau, Richard, 9
- Layout and structures of staging area, 32
- Lazy man's fire, 102
- Leadership, 14
  - qualifications for, 38
  - skills needed, 41-43
- Leaf prints, 141
- Learning by doing, 7, 12
- Ledlie, John A., 8, 9
- Lespedeza, 144
- Lightning, 52
- Little pig potatoes, recipe for, 115
- Log carriers, 14
- Log peavey, 74
- Luehrs, Armin, 8
- MacBean, John, 8, 9
- Macfarlan, Allan A., 102, 175
- Malins, Walter, 8, 9
- Manual on Saw and File*, 74
- Map, 58-63
  - Canadian canoe, 58
  - importance of, 58
  - reading of, 42
  - symbols on, 59
  - U. S. Geological Survey, 58
- Map and compass work in winter, 152
- Marine glue, 139
- Mason, Bernard S., 72, 74
- Matches, 14
- Materials for lashing, 160
- Mattock, 75
- Mèal, preparation of, 13
- Meat cookery, 108
- Median age of campers, 46
- Mentholatum, 48
- Merthiolate, 48
- Menus, suggested, 109, 110
  - breakfast, 109
  - dinner, 109, 110
  - importance of careful planning, 48
  - supper, 110
- Mesopotamia, 73
- Methods of in-camp instruction, 122
- Method of training trail leadership, 43
- Miller, Willis, 8, 9
- Mine holes, avoidance of, 52

- Moccasin, Indian, 79
- Moore, Harold, 8
- Morning skies, weather signs of, 158
- Mosquitoes, protection from, 89, 90
- Moss, as substitute compass, 62
- Motivation for trail camping, 43
- Mountain trek, 43
- Musselman, Virginia, 175
- Nails, assorted, 14
- National Campcraft Commission, 8, 9
- Natural resources, use of, 38
- Nature lore, 174
- Nature specimens, collection of, 19
- Nature study in winter, 152
- Nature trail, planning a conservation, 144
- Nausea, 50
- Needle, 14, 48
- Nelson, Roger, 9
- New Mexico, 73
- Note taking, 15
- Nurse, camp, 15
- Objectives for development of trail camp program, 11, 12
- Observation of nature life, 18
- One-blanket bed, 88
- One-Pot Cookery*, 149
- Organizational patterns of camps, 11
- Orientation and exploratory hikes, 16
- Other campfire cooking methods, 108
- Ott, Elmer F., 175
- Out-of-doors, love for, 40
- Outside toilet, 55
- Overnight camping, 35
- Pack, 13, 80-84
  - Adirondack, 83
  - balance of, 80
  - care of, 36
  - Duluth, 83
  - guiding principles in use of, 80
- Pack basket, 83
- Pack frame, 84
- Packing and unloading canoe at portage, 130
- Packing food, 105
- "Pac," 79
- Paddle, selection of, 125, 126
- Paddling, methods of, 124, 126
- Paddling strokes, 124, 125
- Pan broiling, 108
- Pancakes, recipe for, 112
- Patinos, Nicholas, 8
- Peat, 99
- Peeling spud, 75
- Peg, how to lash to tree, 165
- Perry, Donald, 8
- Personal hygiene, 57
- Personality, definition of, 40
- Peterson, Gunnar, 9
- Physical skills needed for trail camping, 39, 41
- Pick, 55, 75
- Picture frame, how to lash, 165
- Pillow, 89
- Pit viper, 155
- Planning chart for unit of experience, 167
- Planning conservation nature trail, 144
- Pliers, 14
- Poison ivy, 154, 155
  - what to do for, 49
- Pocket knife, 71
- Poison oak, 154
- Poisonous plants, 141, 154
- Poisonous snakes, 155
- Poison sumac, 154
- Poleaxe, 64
- Poncho, 80, 85
- Portage, looking for, 60
- Portaging canoe, 131
- Position for chopping, 67
- Posthole digger, 75
- Potatoes baked in hot coals, 115
- Power wheel, 65
- Precamp training period for camp counselors, 41
- Preparation for the novice, 152
- Preparation for the trip, 47, 123
- Preparing menu and food list, 104
- Primary focus for program development, 12

- Program aide, 45
- Program director, 39
- Program resources, 42
- Progressive campcraft program, 167
- Program material, selection of, 40
- Program, storage building focal point for, 14
- Projects in conservation by age groups, 141
  - 6, 7, 8 year-olds, 141
  - 9, 10, 11 year-olds, 142
  - 12, 13, 14 year-olds, 143
  - 15, 16, 17 year-olds, 144
- Property, respect for private, 52
- Public relations, counselor's knowledge of, 42
- Pulp hook, 75
- Pulpwood axe, 64
- Pulpwood logging, 64
- Purpose of staging area, 33, 35
  
- Qualifications, basic, 5
  
- Raft, 120
- Rain warning sky, 158
- Rainy weather gear, 78
- Raised fire, 101
- Rattlesnake, 155, 156
- Recipes for trail camping, 111
- Reflector fire, 100
- Reflector oven, 13, 108
- Refuse, disposal of, 140
- Reitzman, Michael, 9
- Relationship
  - between counselor and camper, 40
  - of man to natural laws, 42
- Repair kit, 14
- Resource persons, 44
- Resources, program, 42
- Rice and cheese, recipe for, 116
- Rifle, 71
- Rigors of winter camping, 146
- Roast corn, recipe for, 115
- Rock broiling, 108
- Roehm, Ralph, 8, 9, 175
- Role of trail camp counselor, different from counselor in centralized camp, 38
- Rope, 14
- Round lashing, 163
- Route, planning of, 41
- Rowe, John H., Jr., 8
- Rucksack, 82
- Rust, protection from, 76
  
- Saber-toothed tiger, 73
- Safety, groups briefed about, 15
  - importance of rules of, 58
- Safety instructor, 38, 39
- Safety precautions, 99
- "Sailors," 70
- Salt tablet, 48, 50
- Sample planning chart, 12
- Sanitation, 33, 172
  - selection of site from aspect of, 19
  - standards of, 15
- Saw, 14, 73
  - buck, 73
  - bushman's, 74
  - circular wood, 73
  - first fabricated, 73
  - one-man crosscut, 73
  - pruning, 74
  - two-man crosscut, 74
- Scissors, 48
- Scrambled eggs, recipe for, 114
- Scrambled potatoes, recipe for, 114
- Seedling bed, planting of, 142
- Seed tick, 52
- Selecting site for shelter, 95
- Selection and preparation of trail camp site, 54, 141
- Self-rescue by staying with canoe, 124
- Sheath knife, 71
- Sheer lashing, 163
- Shelter, 33, 53, 92
  - on winter trail, 150
  - permanent, 93
  - selecting site for, 95
  - temporary, 92
- Shelter half, 94
- Shirt, woolen, 77
- Shish-kabobs, recipe for, 116
- Shorts and trousers, 77

- Shovel, 55, 75
  - collapsible, 13
- Simmering, 108
- Skill instruction, 13
- Skill, manual, 40
  - physical, 39
- Sledge, 14
- Sleeping bag, 87, 97, 151
- Slumgullion, recipe for, 113
- Small game, raising and liberating, 143, 144
- Smoke signals, 63
- Snakes, poisonous, 155, 156
- Snake bite, kit for, 49
  - prevention of, 156
- Snow house, 151
- Snow sky, 158
- Socks and stockings, 77
- "Soldier wedge," 70
- Some precautions in felling, 70
- Sore throat, 50
- So You Want to Help People*, 40
- Special projects, 29
- Spiritual growth, recognition of, 42
- Sprain, 50
- Square knot, 161
- Square lashing, 162
- Staff, basic qualifications for, 38
  - briefing of kitchen, 14
  - trained in campcraft skills, 12
- Staging area, 13
  - care of equipment in, 36
  - definition of, 31
  - layout and structures of, 33
  - purpose of, 33
- Staging area practice, 172-174
- Standard practices for trail camping, 13
- Star fire, 102
- Statten, Taylor, 175
- Sterilization of water, 54, 55
- Stern paddler, duties of, 125
- Steward, clearance with, 14
- Storage building, 14
- Storehouse, 32
- Straddle trench, how to make, 55, 56
- String, 14
- Sty, 49
- Suggested menus, 109
- Sumerians, 73
- Sunburn, 49
- Sunset skies, 157, 158
- Supervision, 39
  - by program aide, 45
  - for out-of-camp swimming, 15
- Supper menus, 110
- Swamping test, 124
- Swimming areas, 15
- Swimming precaution, 53
- Swimming test, 123
- Table of measurement for packing food supplies, 106
- Tail flip in portaging, 134
- Tape, adhesive, 14
- "Tarp," canoe, 14
- Teaching skills, counselor's need of, 42
- Temperatures, 50
- Temporary or permanent shelter, 92
- Tent, 13
  - care of, 36, 98
  - pitching of, 41
- Tent or cabin campfire experience, 21
- Tent pole, 94, 98
- Terrain, study of, 95
- Territory, knowledge of, 42
- Testing program for canoeing, 123, 124
- Thermometer, 48
- Things to be lashed, 165
- Thread, heavy, 14
- Three-blanket bed, 89
- Three-quarter axe, 64
- "Timber!", 70
- Timber carriers, 74
- Tinder, 102
- Tip test in canoeing, 124
- Tomahawk, 71
- Tools, basic, 33
  - care of, 47
  - use of, 41, 172
- Tourniquet, 48, 51
- Towel rack, how to lash, 165, 166
- Trail bed, 84
- Trail blazers, 62
- Trail camping, 37

- basic equipment for, 13
- definition of, 37
- equipment check list for, 170
- health and safety for, 15
- leadership, 14
- values of, 42
- Trail camping experience, 27
- Trail code, 62
- Trail counselor, different role of, 38
  - briefing of, 45
  - qualifications for, 38
- Trail rarebit, recipe for, 114
- Training, in-camp, 42
- Training courses for physical skills, 41
- Tree blazes, 63
- Tree moss, substitute compass, 62
- Tree, natural lean of, 69
  - moss on north side of, 62
- Tree, planting of seedling, 142, 143
  - removal of dead, 142, 144
- Tree seeds, collection of, 142
- Trip schedule planned, 47
- Tump line, 83
- Tweezers, 48
- Two-blanket bed, 89
- Two "musts" for shelters, 97
- Types of canvas tents, 94
- Types of fires, 99
- Types of groundbeds, 85
- Types of knives, 71
- Types of material for fire building, 102
- Types of poleaxes, 64, 65
- Underwear, 78
- Unguentine, 48
- Unit of experience, 7, 8, 12, 16-30
  - approach of, 43
  - as basis of staff training, 13
  - concomitant values of, 8
  - sample planning chart for, 13, 167
- U. S. Forest Service, 145
- U. S. Geological Survey, 58
- Ur of the Chaldees, 73
- Van Hine, Walter, 8
- Venables, Lloyd, 9
- Visual aids, 44
  - bibliography of, 176
- Wagner, Ralph H., 89
- Washing of dishes and mess gear, 56, 57
- Waste paper, 56
- Watch, used as substitute compass, 61
- Water moccasin, 155, 156
- Water safety, 120
- Water supply, purification of, 54
- Weather change, 159
- Weather forecast, 159
- Weather precautions, 52
- Weather station, development and operation of, 29
- Webb, Kenneth and Susan, 175
- Wedge, 14, 70
- Weis, W. Norris, 8, 9
- What to pack, 81
- What to wear to bed, 90
- What trail campers wear, 77
- What to eat on winter trail, 149
- "Widowmakers," 70
- Wild flowers, identification of, 141
- Wild life, observation of, 140
- Willow bed, 87
- Winter camping, 146
  - clothing for, 147
  - general equipment for, 151
  - preparations for the novice, 152
  - rigors of, 146
- Winter pastimes on the trail, 152
- Wine, 14
- Wire cutter, 14
- Wittenberg, Rudolph M., 40, 175
- Woodcraft, 72
- Woodcraft area, 33
- Woodsmen, 73
- Wood tick, 51
- Wool, 87
- Wounds, procedure for cleansing, 51
- Zarchy, Harry, 175







72

THE FREE LIBRARY OF PHILADELPHIA  
3 2222 07007 2758

X

796.54    \$TACK    Yo88h  
Handbook of trail  
campcraft

54-107965


\$TACK

796.54  
495  
X

